

IMPOSA lite Series User's Manual

Version 1.1

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1. Safety

Before installing an IMPOSA lite display, one is required to read this chapter carefully to obtain important information as to how to prevent personal injury and to protect the display from damage during installation.

Overview

§ Guidelines

§ Safety instructions

1.1 Guidelines

- § Before installing the display, make sure you have read the User's Manual with full understanding.
- § Installation must be performed by authorized and qualified technical personnel only.
- § The installation site must be solid and without any chance of sinking, tumbling or falling. It must be at the same time free of over-heat, radiation, pollution, corrosion or gas release.
- § Only use components provided by the Manufacturer or those approved or specified by the Manufacturer during installation of IMPOSA lite series displays.
- § Do not modify and/or replicate any component or accessory without permit from the Manufacturer.
- § Always follow all installation instructions. Please contact the Manufacture if any problem arises.

Special attention should be paid to all "**CAUTION**" and "**TIPS**" mentioned in this User's Manual which respectively intends:

CAUTION: to draw operators' attention to an important instruction or to remind them of what might happen.

TIPS: to give advice on how to perform an operation better.

1.2 Safety instructions

Product care

- § All parts must be fully protected and packed in good order during transportation, storage, etc. No external pressure shall be applied on them.
- § No part of the product can come into contact with rain before or during installation. Keep them in dry and clean places.
- § All parts must be prevented from being trampled, stroke or dropped. Follow all instructions while carrying or moving the parts. Otherwise the product can be subject to terminal damage.

Installation

- § Before installation, ensure that the supporting structure or frame has sufficient strength to hold the display firm and safe.
- § For hoist installation, the operator must follow all instructions given in this User's Manual, including where the hoist brackets should be located, that the crane used must come with sufficient capability to hoist the product, and that the operating ground must have the strength to sustain the crane, etc.
- § Most components of the product are heavy. Therefore high attention should be paid to personnel safety during installation.
- § All connection bolts must be fastened firmly and securely.

Power

- § An IMPOSA lite display is to be powered by a 3-phase power with 5 lines. That is, it must come with an independent neutral line and an independent ground line.
- § Provide the power and power supply circuits in accordance with the power consumption of the display. All circuits must come with protection tubes and confirm with the local electrical safety standards.
- § The LDU and PSU must be installed near the display. Cables from the LDU and PSU to the display

cannot be stretched or impaired. Power distribution from the PSU to the display cannot exceed what is required by this User's Manual.

- § The input voltage of an IMPOSA lite display can be set at 120VAC or 220VAC. But ensure to set it right before power connection.
- § Do not attempt to fix an impaired cable. Replace it with a new one.
- § A big current is produced the moment a display is powered on. Therefore an air breaker that can sustain big currents should be used as the master power switch.

Grounding

- § IMPOSA lite displays must be grounded with an INDEPENDENT ground wire.
- § Displays to be installed independently from any architectural structure must be equipped with an independent ground wire and, if necessary, a lightning rod. The down lead of the lightning rod should be insulated with the frame of the display. Set the earth electrode of the lightning rod and that of the ground wire away from each other.

Usage

- § LEDs on the display cannot be pressured at any time. Otherwise they can be damaged for good.
- § Follow the steps mentioned in this User's Manual while cleaning the front side of the display. Only soft clothing or brush, neutral detergent and water are to be applied to the display.
- § Power must be cut off before dismantling any part for maintenance.

2. IMPOSA lite Series Tiles

This chapter focuses on the main component of an IMPOSA lite display---the IMPOSA lite Tiles.

Overview

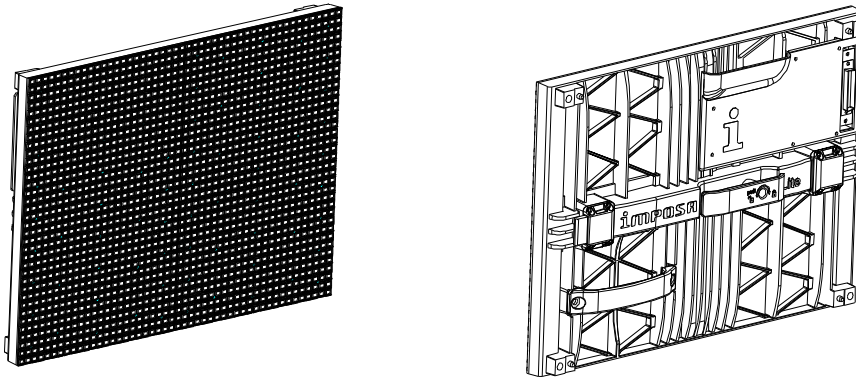
§ IMPOSA lite Tile

§ IMPOSA lite Display

2.1 IMPOSA lite Tile

Tile overview

The front and back view of an IMPOSA lite tile



The models VFI6, VFI8, VFI9.6 and VFI12 included in the IMPOSA lite series have tiles of the same size but with different resolutions. Please see below:

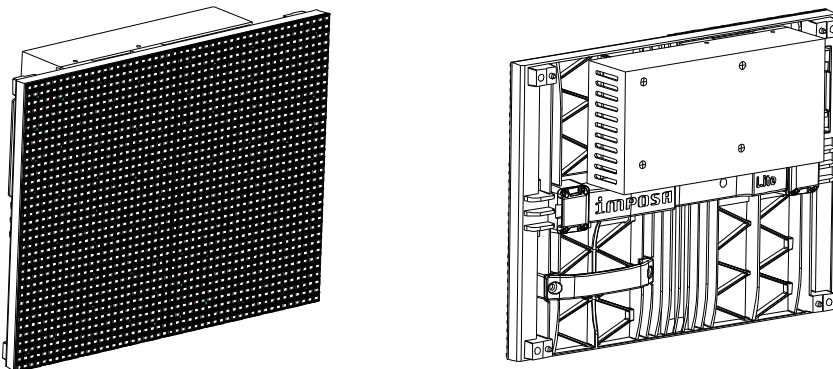
| Tile | VFI6 | VFI8 | VFI9.6 | VFI12 |
|-------------|-------|-------|--------|-------|
| Pixel pitch | 6mm | 8mm | 9.6mm | 12mm |
| Resolution | 64X48 | 48X36 | 40X30 | 32X24 |
| Weight | 2.8kg | | | |

Part Number

| Tile | VFI6 Tile | VFI8 Tile | VFI9.6 Tile | VFI12 Tile |
|-------------|-----------|-----------|-------------|------------|
| Part Number | | | | |

The other series, the IMPOSA lite P series, uses IMPOSA lite Tiles integrated with a power supply.

The front and back view of an IMPOSA lite P Tile



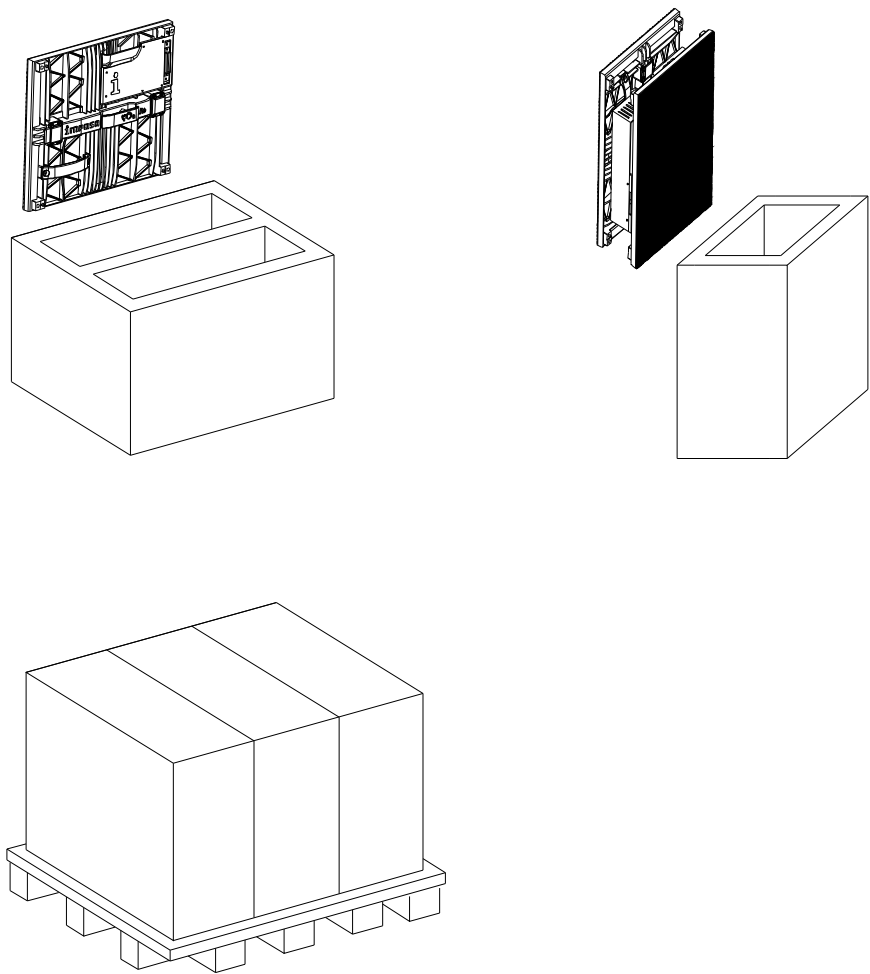
Parameters of IMPOSA lite P series models

| | | | | |
|-------------|-------|-------|---------|--------|
| Tile | VFI6P | VFI8P | VFI9.6P | VFI12P |
| Pixel pitch | 6mm | 8mm | 9.6mm | 12mm |
| Resolution | 64X48 | 48X36 | 40X30 | 32X24 |
| Weight | | | | |

Part Number

| | | | | |
|-------------|------------|------------|--------------|-------------|
| Tile | VFI6P Tile | VFI8P Tile | VFI9.6P Tile | VFI12P Tile |
| Part Number | | | | |

Package of the IMPOSA lite series and the IMPOSA lite P series Tiles

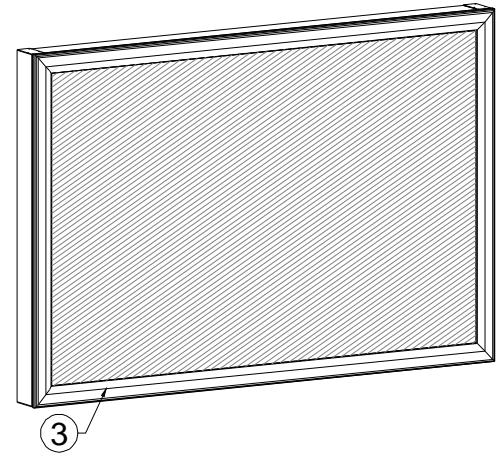
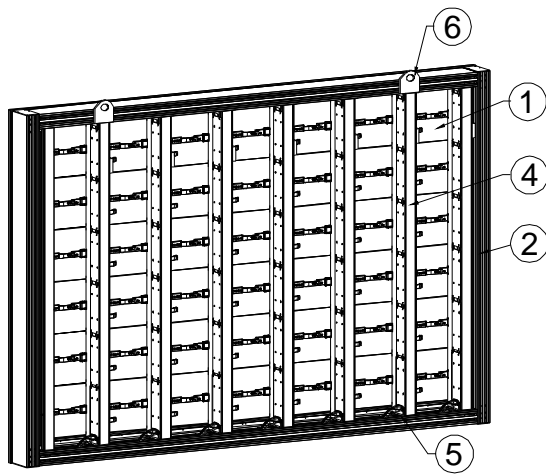


2.2 IMPOSA lite display

IMPOSA lite display overview

An IMPOSA lite display is made of a certain number of tiles and an extrusion frame. Thanks to its simple structure, cabling and installation of the display can be done in a breeze.

View of an IMPOSA lite display

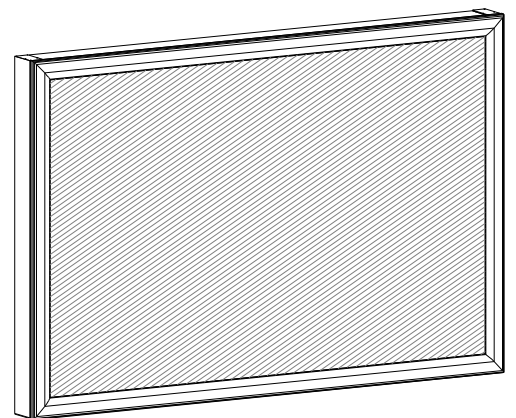
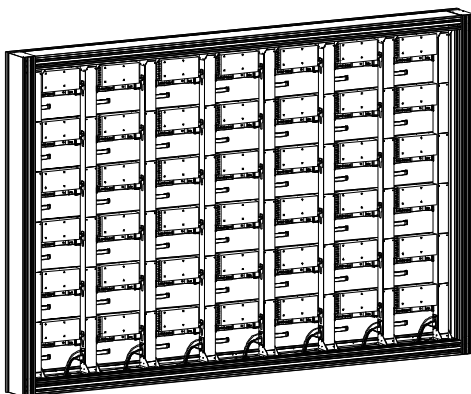


Part Numbers

| | Parts | Part Number |
|---|-------------------------|-------------|
| 1 | Tiles | |
| 2 | Main extrusion | |
| 3 | Cover extrusion | |
| 4 | Column extrusion Module | |
| 5 | Nut block | |
| 6 | Eyebolt set | |

Given its module size, the size of an IMPOSA lite display changes based on 384mm in its width and on 288mm in its height.

View of an IMPOSA lite P series display



3. Installation requirements

This chapter covers requirements for installation, power supply and the control system of an IMPOSA lite display.

Overview

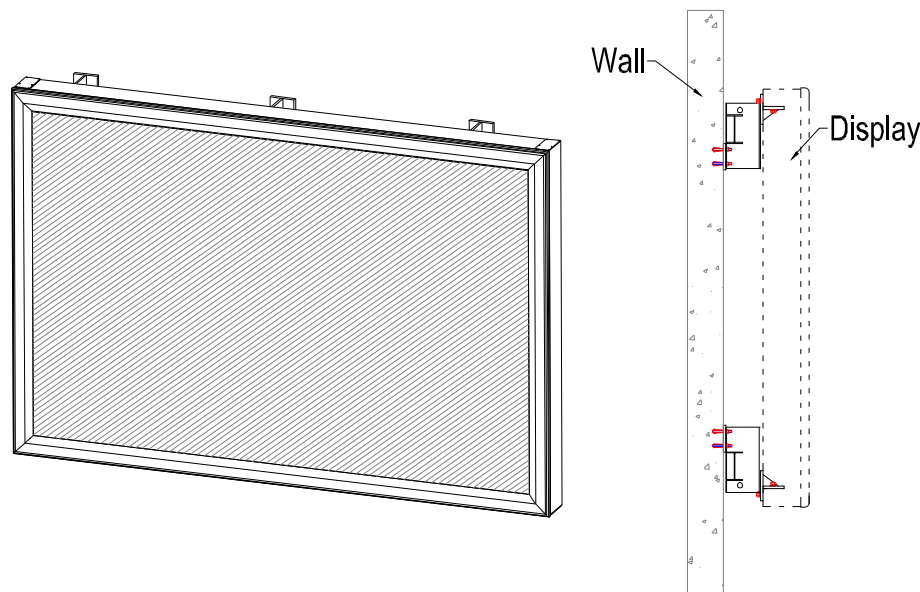
- § Mechanical requirements
- § Electrical requirements
- § System requirements

3.1 Mechanical requirements

An IMPOSA lite display comes with its own structural frame which makes installation simple and easy. Besides, it requires a strong and reliable supporting frame at the back to hold the display firm. Wherever this supporting frame is to be installed, on the ground, onto the pole or on a wall, attention should be paid to the following few points:

1. The display should be installed in a place that allows a clear and complete view of the display.
2. The supporting frame has to be strong enough to prevent the display from tumbling.
3. The installation site must have the strength to withstand the total weight of the display plus its structural frames.
4. The IMPOSA lite display is meant for indoor use only. The ambient temperature, dust and ventilation, esp. that at the back of the display must be considered when one is choosing the installation site.

A typical way of mounting an IMPOSA lite display onto a wall:



3.2 Electrical requirements

Power requirements

- § An IMPOSA lite display works on AC 200-240V, 50~60Hz. Each column of the display has an independent power supply circuit and can thus be powered by electricity from different phases.
- § When the max. power consumption of an IMPOSA lite display is less than 3KW, the display can be powered by single-phase power supply circuits which include a live, neutral and ground wire. Each circuit is controlled by an independent air-break switch.
- § But if the maximum consumption of the display is over 3KW, it should be powered by 3-phase power supply circuits c/w a live, neutral and ground wire. The 3-phase power distributes power to tiles of each column on an average level. A PSU (power supply unit) is used to control the power.
- § The IMPOSA plus block can also be powered by AC100-125V, 50~60Hz power supplies. But this needs to be specified in the production order so that it can be pre-set before going out of factory.

Grounding

The IMPOSA lite display shall be grounded at the installation site. If the existing power supply circuit cannot provide a good ground wire or does not even have one, it's a must to set or reset a reliable ground wire for the display. Good grounding will enable the display to work properly and can prevent it from being disturbed by surge.

3.3 System requirements for the Control software

When the Windows System is in question:

PC System requirements:

- § CPU Pentium IV or equivalent, 2.4GHz
- § 1 GB DDR RAM
- § Free hard disk space 300MB
- § Resolution 1280x1024 with 32M video memory
- § DVI port
- § Ethernet connection
- § Windows XP Professional or Windows Vista

4. Components of an IMPOSA lite display

This chapter continues to introduce other components that make up of an IMPOSA plus display.

Overview

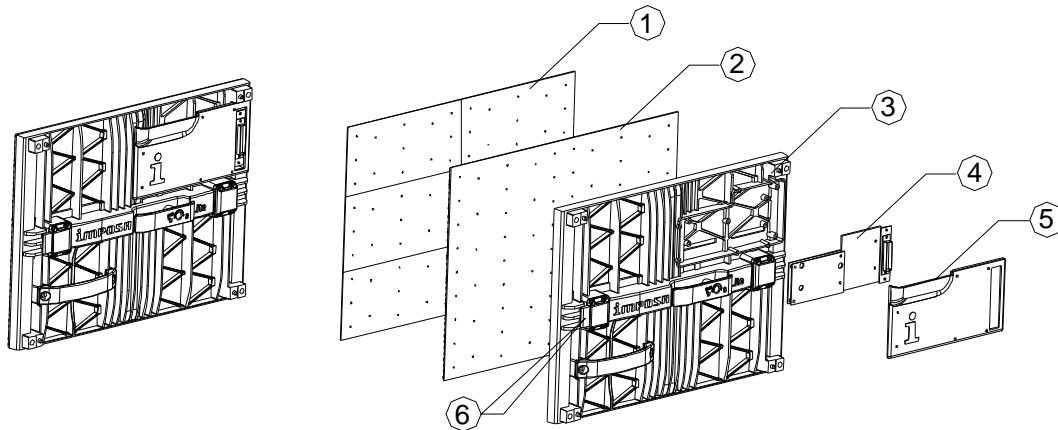
- § IMPOSA lite Tile
- § Mechanical Components
- § Power Supply Unit (PSU)
- § Logic Distribution Unit (LDU)
- § Video Processor Unit (VPU)
- § Cables
- § Control software
- § Others

4.1 IMPOSA lite Tile

Introduction to the IMPOSA lite Tile

The IMPOSA lite Tile is the basic display unit of an IMPOSA lite display. The Tile is composed of an LED display board, a mask, a control board and some locks. At the back of the Tile is a connector that integrates the signal and DC power input.

View of an IMPOSA lite Tile

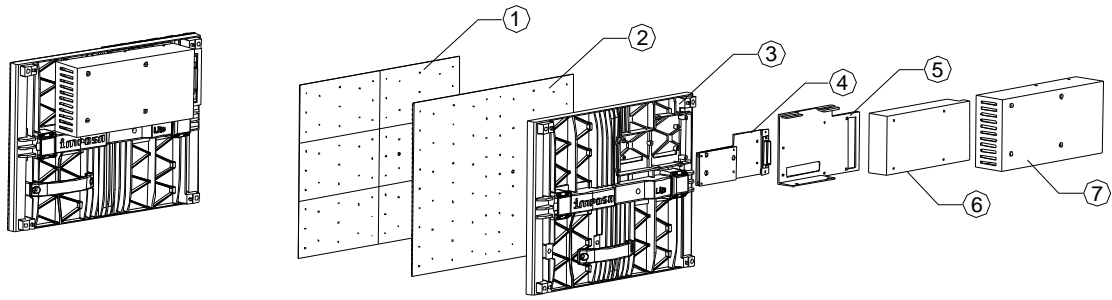


Parts and Part Numbers

| | Parts | Part Numbers | Remark |
|---|---------------|--------------|--------|
| 1 | Mask | | |
| 2 | PCB | | |
| 3 | Tile base | | |
| 4 | Control Board | | |
| 5 | Cover plate | | |
| 6 | Lock head | | |

The P series Tile includes an extra covered power box. Besides, the P series Tile has independent signal connectors and AC input connectors.

The view of an IMPOSA lite P series Tile

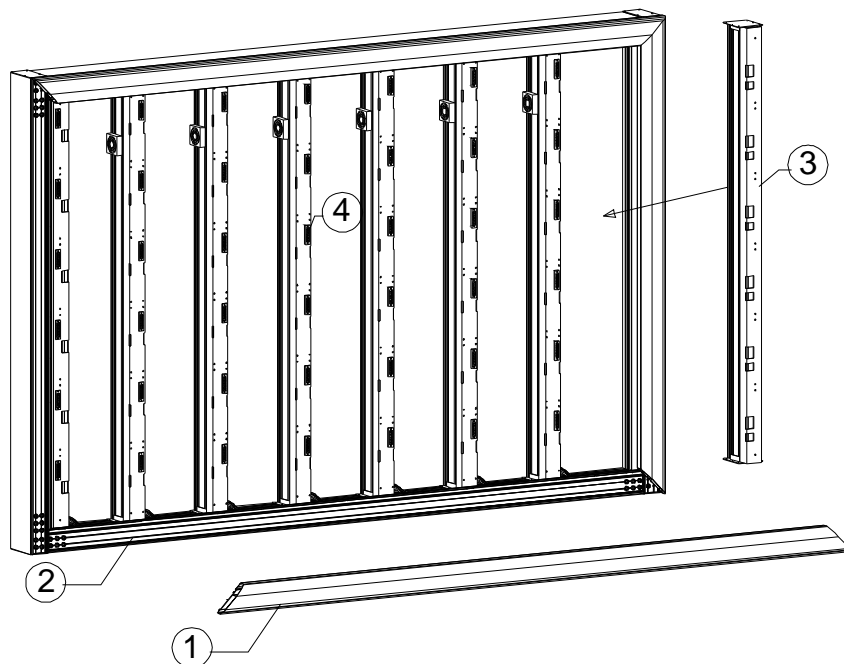


Parts and Part Numbers

| | Parts | Part Numbers | Remark |
|---|---------------|--------------|--------|
| 1 | Mask | | |
| 2 | PCB | | |
| 3 | Tile base | | |
| 4 | Control Board | | |
| 5 | Cover plate | | |
| 6 | Power Supply | | |
| 7 | Power cover | | |

4.2 Mechanical Components

Besides the tile, there are some structural components that help make up an IMPOSA lite display. The main extrusion is the structural frame of an IMPOSA lite display, while the cover extrusion is used as a decorative frame to the front of the display. The pole structure is the supporting frame where tiles are to be mounted. It also comes with switch power supplies, power and signal circuits and connectors to the tiles.

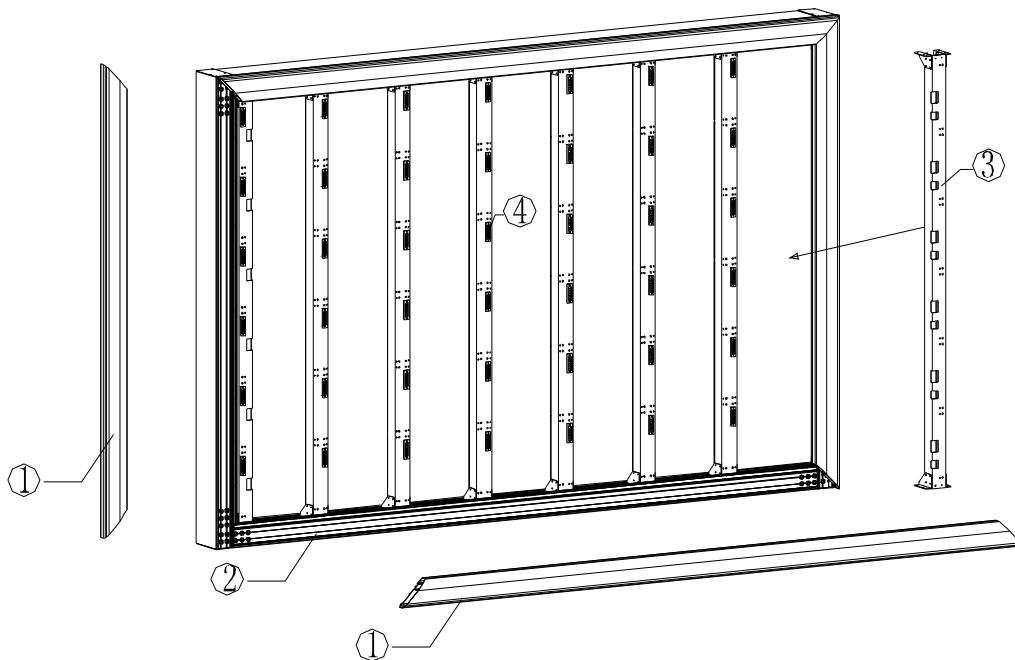


Eyebolts are used for hoist installation of the display. They can be removed after installation.

Parts and Part Numbers

| | Parts | Part Numbers | Remark |
|---|-------------------------|--------------|--------|
| 1 | Cover extrusion | | |
| 2 | Main extrusion | | |
| 3 | Column extrusion Module | | |
| 4 | Signal connector | | |

Similarly, the IMPOSA lite P series display uses the main extrusion and the cover extrusion as its main structural frame. But there is no power supply in its pole structure. Inside it there are only AC power supply cables and signal cables and their connectors.



Parts and Part Numbers

| | Parts | Part Numbers | Remark |
|---|-------------------------|--------------|--------|
| 1 | Cover extrusion | | |
| 2 | Main extrusion | | |
| 3 | Column extrusion Module | | |
| 4 | Column pole | | |

4.3 Power Supply Unit (PSU)

The PSU, short for Power Supply Unit, is the power control center for an IMPOSA lite display. Each output channel of the PSU controls one column of tiles of a display. The PSU is also inbuilt with a surge protector to prevent the display from being disturbed by lightning.

But if the power consumption of a display is not high, an air-break switch can be used in place of a PSU.

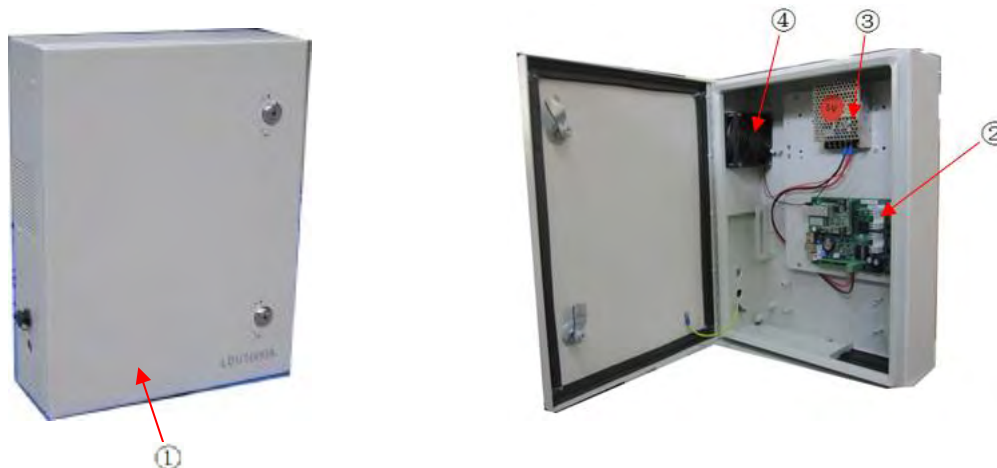


Parts and Part Numbers

| | Parts | Part Numbers | Remark |
|---|-------------|--------------|--------|
| 1 | PSU | | |
| 2 | Air breaker | | |

4.4 Logic Distribution Unit (LDU)

The LDU is the central controller for the IMPOSA lite display. It mainly includes the control board QS5800 or QS5003.



Parts and Part Numbers

| | Parts | Part Numbers | Remark |
|---|------------------------|--------------|--------|
| 1 | LDU3000 | 381-100201 | |
| 2 | Control board (QS5800) | 380-200202 | QS5800 |
| 3 | Power supply (5V) | 380-200102 | 5V |
| 4 | Fan | 380-200302 | |

4.5 Video Processing Unit (VPU)

The VPU is the video and DVI sync processor in the IMPOSA synchronous control system. It is compatible with various video signal inputs as well as the DVI signal input. These signals are then transmitted to the LDU via an optic fiber and shown on the display.



Instrutuion

| | Parts |
|---|-------------------------------------|
| 1 | Power switch |
| 2 | LCD screen |
| 3 | Menu |
| 4 | Shortcut key to other Video Sources |
| 5 | Shortcut key to DVI Input |

4.6 Cables

Signal cable between LDU and Tiles



DVI cable



Fiber cable



Power cable between PSU and Tiles



Network cable



USB cable



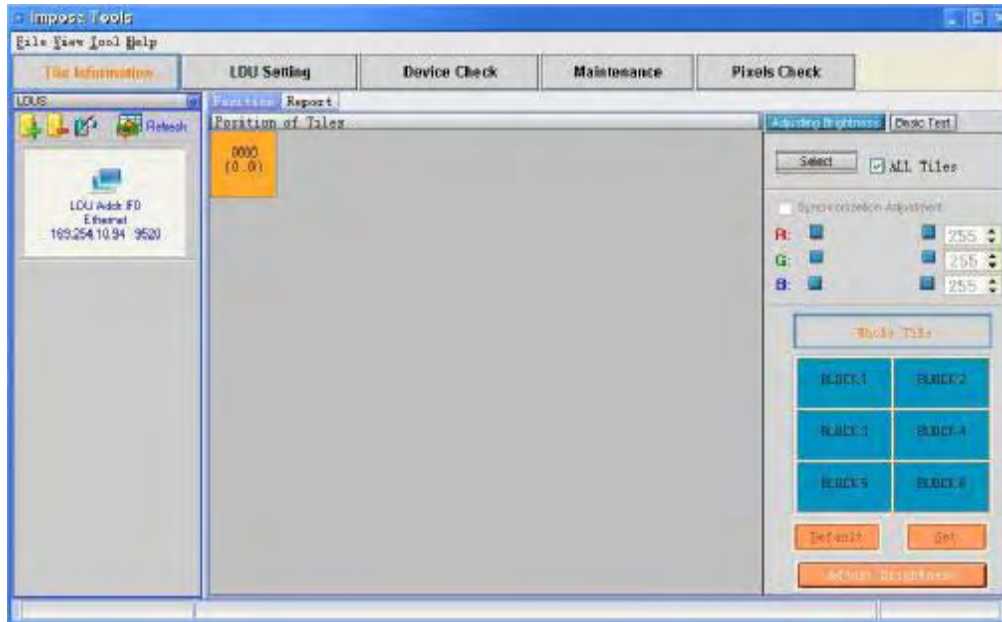
4.7 Control software

The series of control software developed by Imposa itself are meant for system setting, test and display control of an IMPOSA lite display.

TIPS: Please refer to the user's manual of each control software for more information about their functions and use guidance.

IMPOSA Tool

IMPOSA Tool is the tool software for the LDU to set up, configure, manage and test the display.



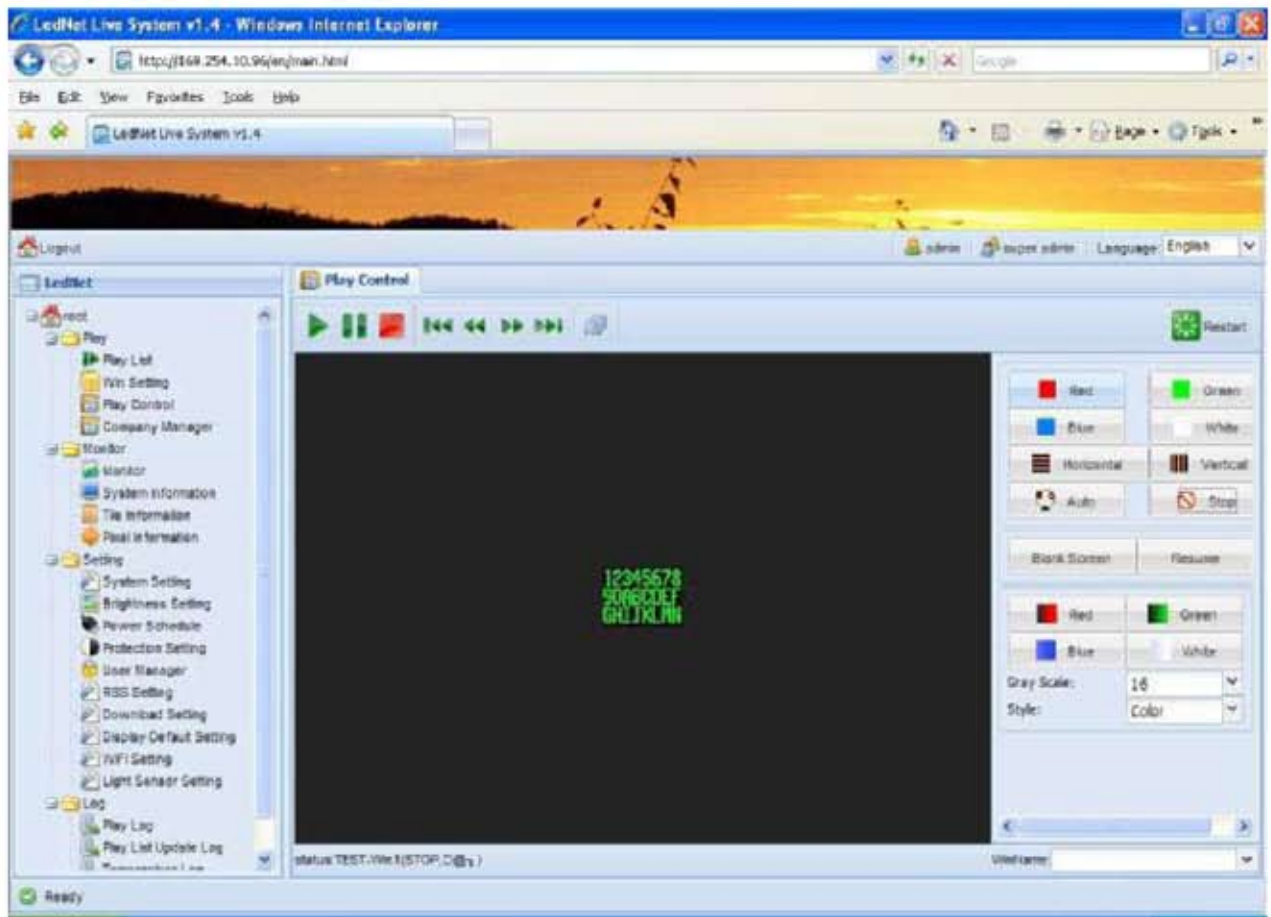
Sigma 3000

Sigma 3000 is a powerful control software for an offline system. It can be used to set up, configure the display as well as control, manage, test and record what is shown offline on the display.



LED Net

LED Net is another functional offline control software that controls via the Web. It's embedded in the control board QS5800 and is meant for use on this board only.



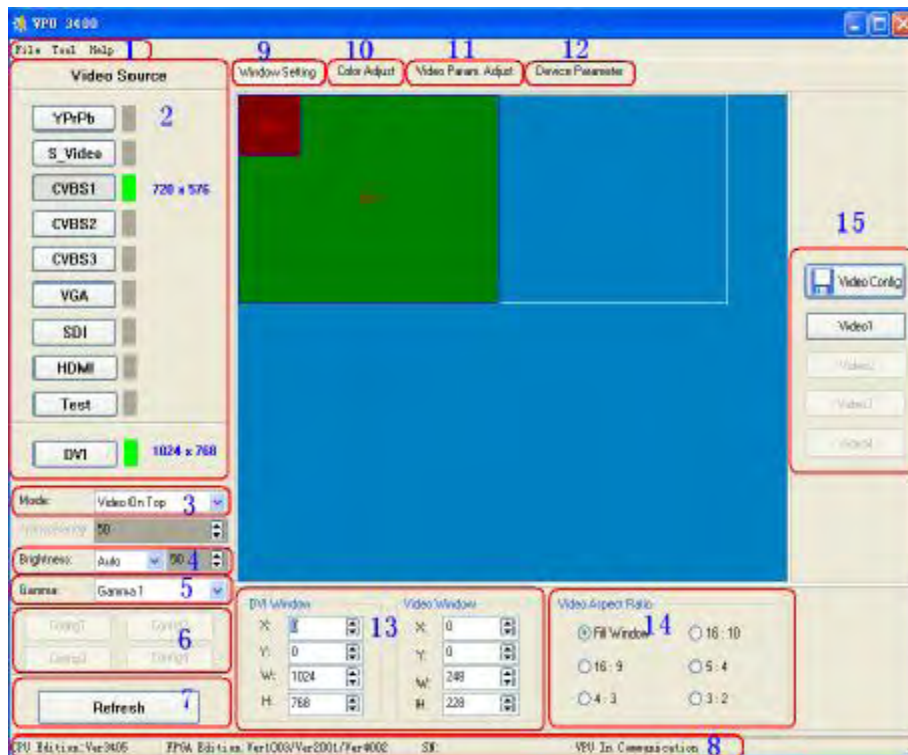
IMPOSA play

IMPOSA play is the sync control software for an IMPOSA plus display. It's used to control synchronous display of video files on the display as well as for system setup.



4.Components of an IMPOSA lite display

VPU 3400 is the setup and control software for the VPU. It's used to manage and control the synchronous display of various videos inputs on the display and as always, system setup.



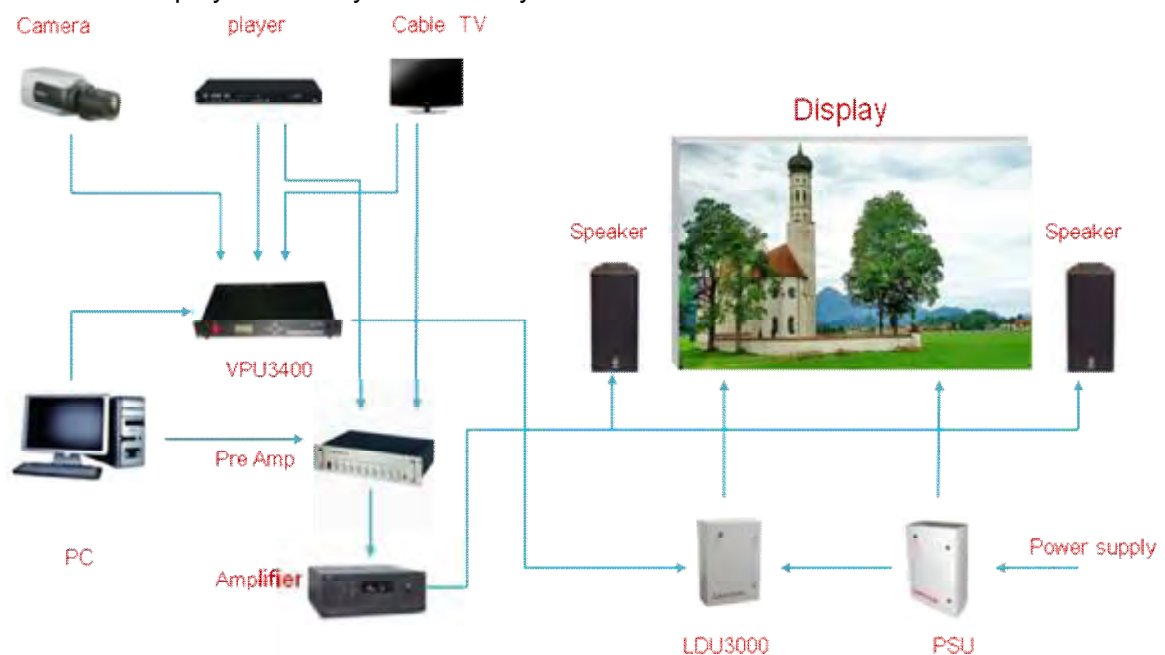
4.8 Others

To complete the control system, an IMPOSA lite display may also require some other accessories, say a computer installed with various video or picture tailoring or editing software, etc.

If the synchronous system is in question, extra video devices like a Camera, a Record disc, a set of audio equipment including a prime amplifier, a power amplifier and a voice box, etc. are requires as well.

All the accessories mentioned above are to be provided by the user on their own based on actual applications.

An IMPOSA lite display with the synchronous system



5. Installation

This chapter describes the various installation methods of an IMPOSA lite display.

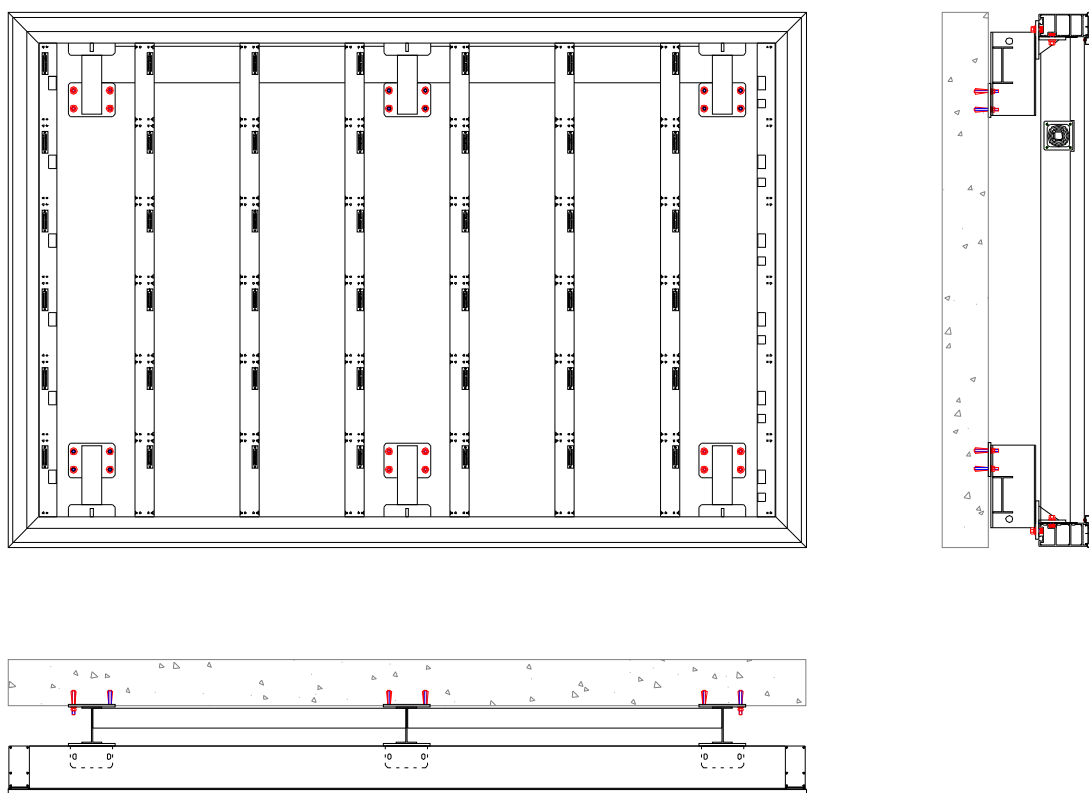
Overview

- § Preparing the supporting back structure
- § Mounting the extrusion frame
- § Fixing the IMPOSA lite Tile
- § Other types of supporting structure

5.1 Preparing the back supporting structure

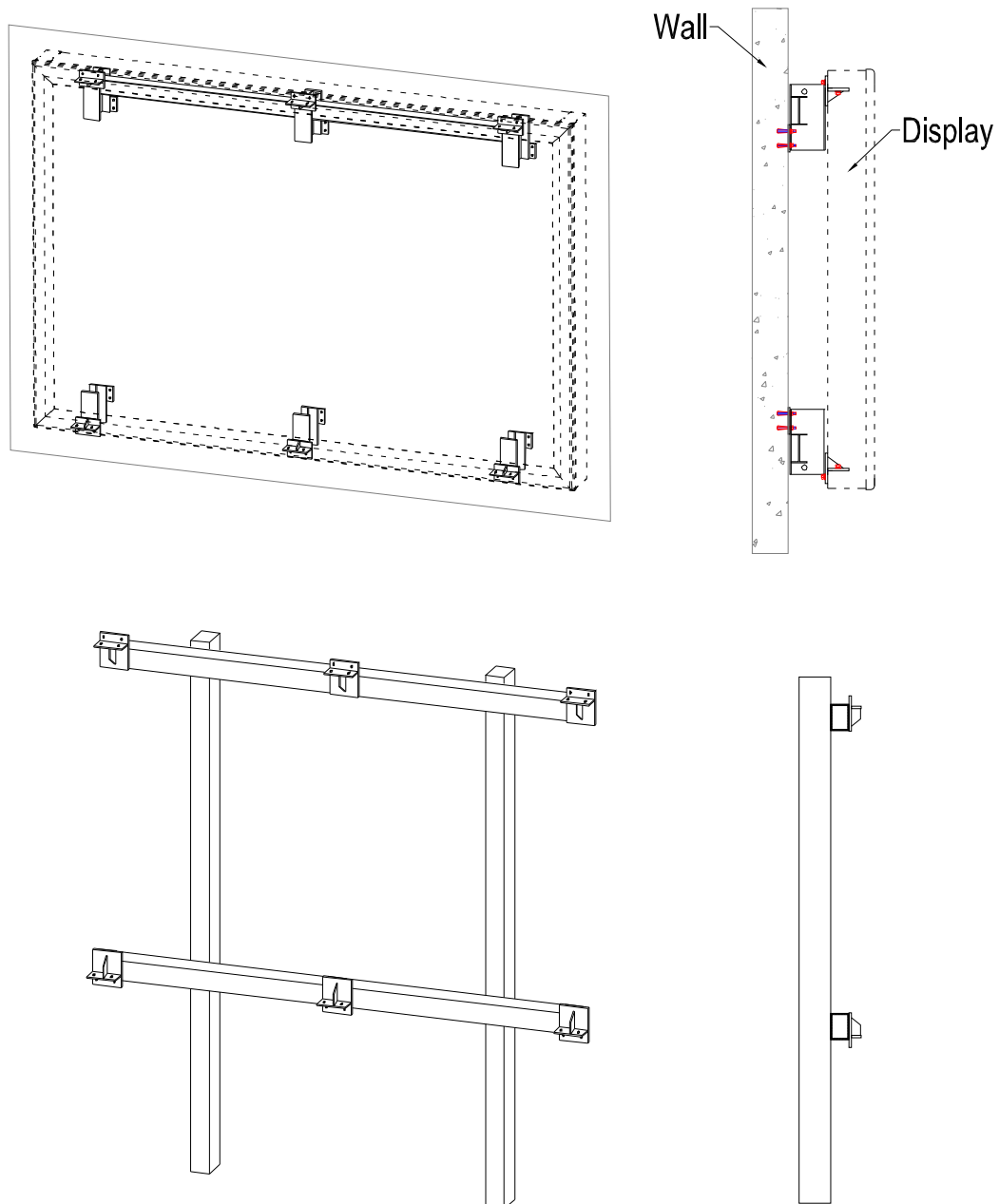
Connect the top and bottom main extrusion of an IMPOSA lite display to its back supporting structure by connection plates. This is usually how the display is installed.

Typical mounting of an IMPOSA lite display:



The back supporting structure is usually built on a wall or sits on a pole on the ground. Depending on the size of the display and space available installation site, there can actually be many ways of preparing the supporting structure.

Below are some typical back supporting structures for clients' reference:



CAUTION: If the display is to be mounted on a wall, one has to consider the withstanding capability of the wall. In such a case, it's usually advised to install the display onto the structural column of the wall.

TIPS: Connection positions on the back supporting structure must match those on the IMPOSA lite display. The manufacturer can provide the back supporting structure or the connection part for the client, but only on the condition that the client fully informs the manufacturer of conditions in the installation site.

5.2 Mounting the extrusion frame

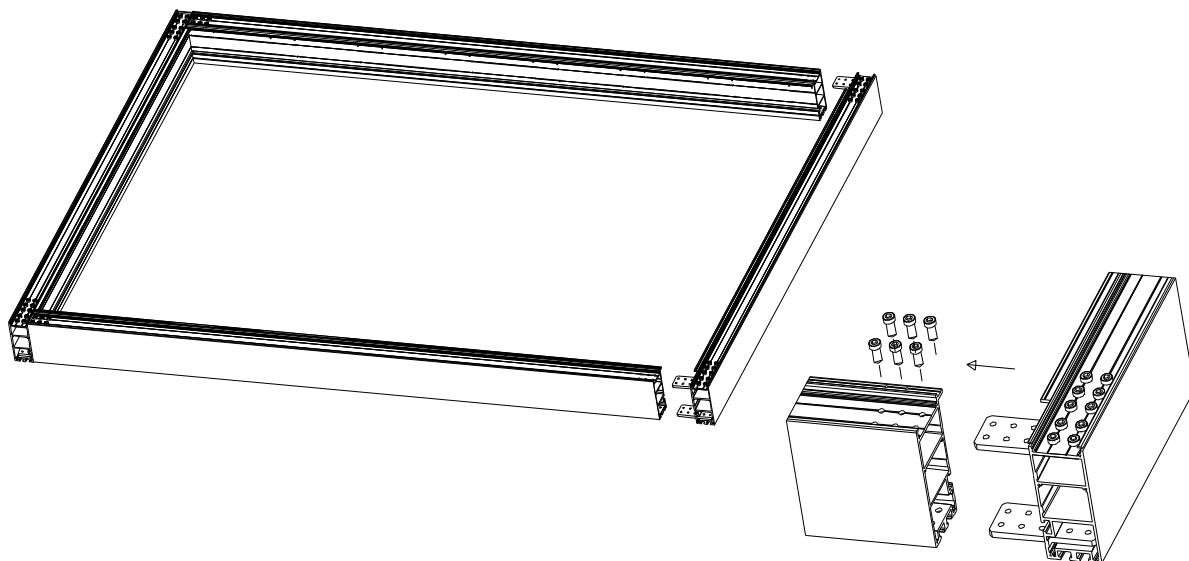
After mounting the tiles, installation of other structural frames are to follow.

5.2.1 Assembling the extrusion frame

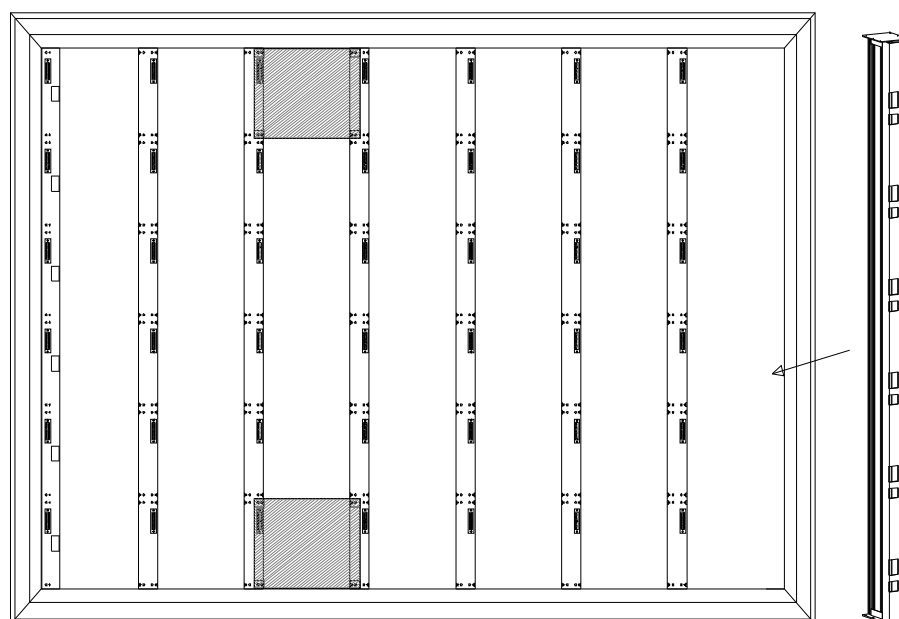
Necessary tools

- § 8mm open-end wrench
- § 8mm box-end wrench
- § 8mm hexagonal key
- § 6mm Cross head screw driver
- § Modular tool

Connect the 4 sides of the main extrusion on a flat ground. Insert corner blocks onto the connection positions of the main extrusion. Screw them in a loose manner.



Mount the pole extrusions in the middle of the frame and mount their screws. With the aid of a Modular tool, find the right position for the screws and screw them tight. Then screw the 4 corners of the Main extrusion tight.



CAUTION: All screws on the frame must be fastened when installation is finished.

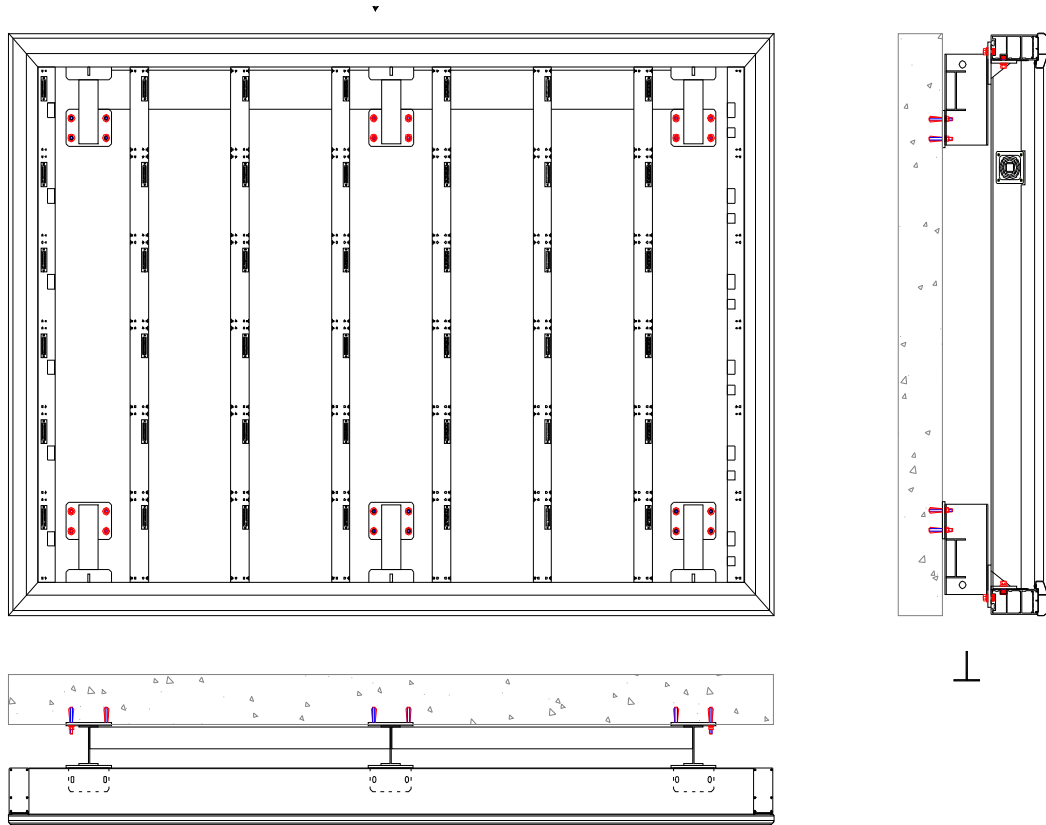
5.2.2 Mounting the frame

Necessary tools

- § 12mm open-end wrench
- § 12mm box-end wrench
- § 6mm Cross head screw driver
- § A Crane

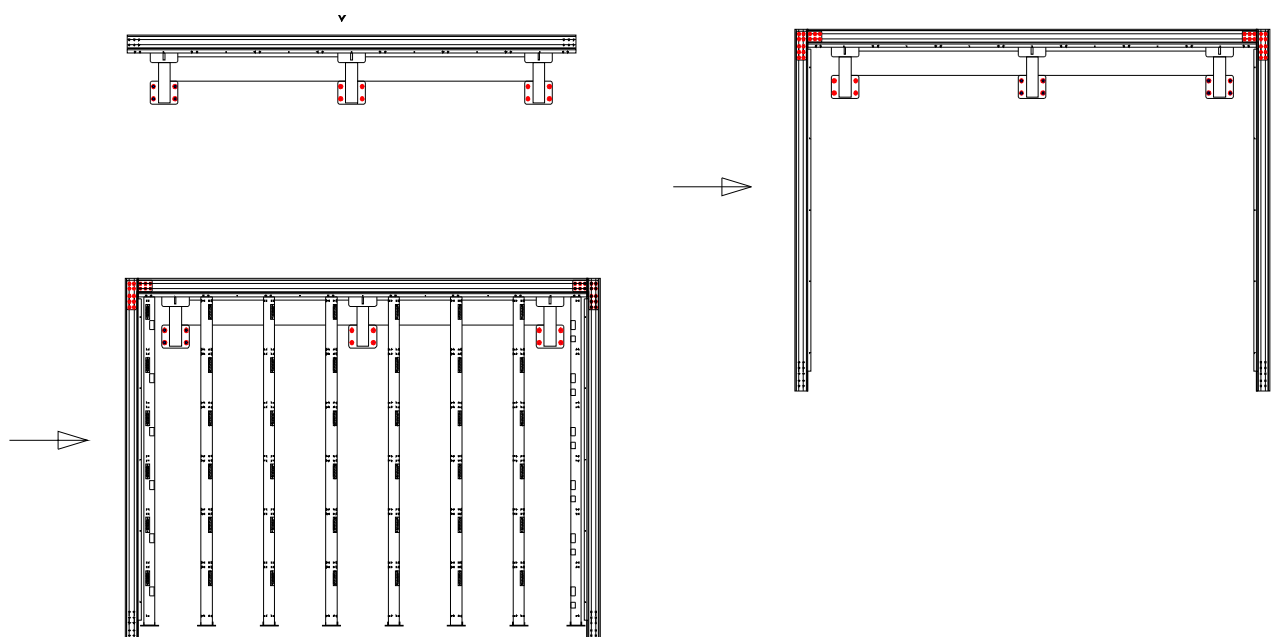
Hoist and fix the finished frame onto the back supporting structure. Keep an eye on the horizontal and vertical condition of the frame as well as the flat surface of the tiles. Make sure everything is in good

condition.



TIPS: In occasions where the installation site doesn't allow use of a Crane while the frame is too big for human operation, one can try the following installation method:

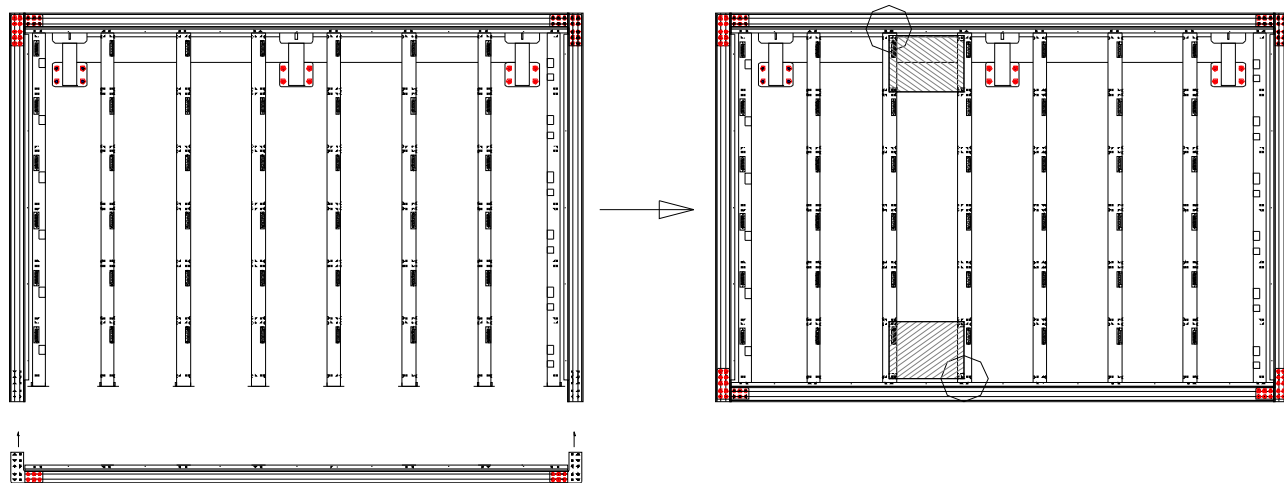
- § Mount the top horizontal Main extrusion onto the back supporting structure and fasten the screws.
- § Then mount the Main extrusions on both sides and fasten their tops with the top horizontal extrusion.
- § Lay the Pole extrusions in place. Screw their tops with the top horizontal extrusion in a loose manner.



- § After all the Pole extrusions and the side Main extrusions have been installed and hang vertically,

one can start to mount the Main extrusion on the bottom.

- § With the aid of a Modular tool, fasten the screws on the top of the Pole extrusions and then those at the bottom. Then fasten the connection screws of the bottom Main extrusion. Last, connect the bottom Main extrusion with the back supporting structure fast.

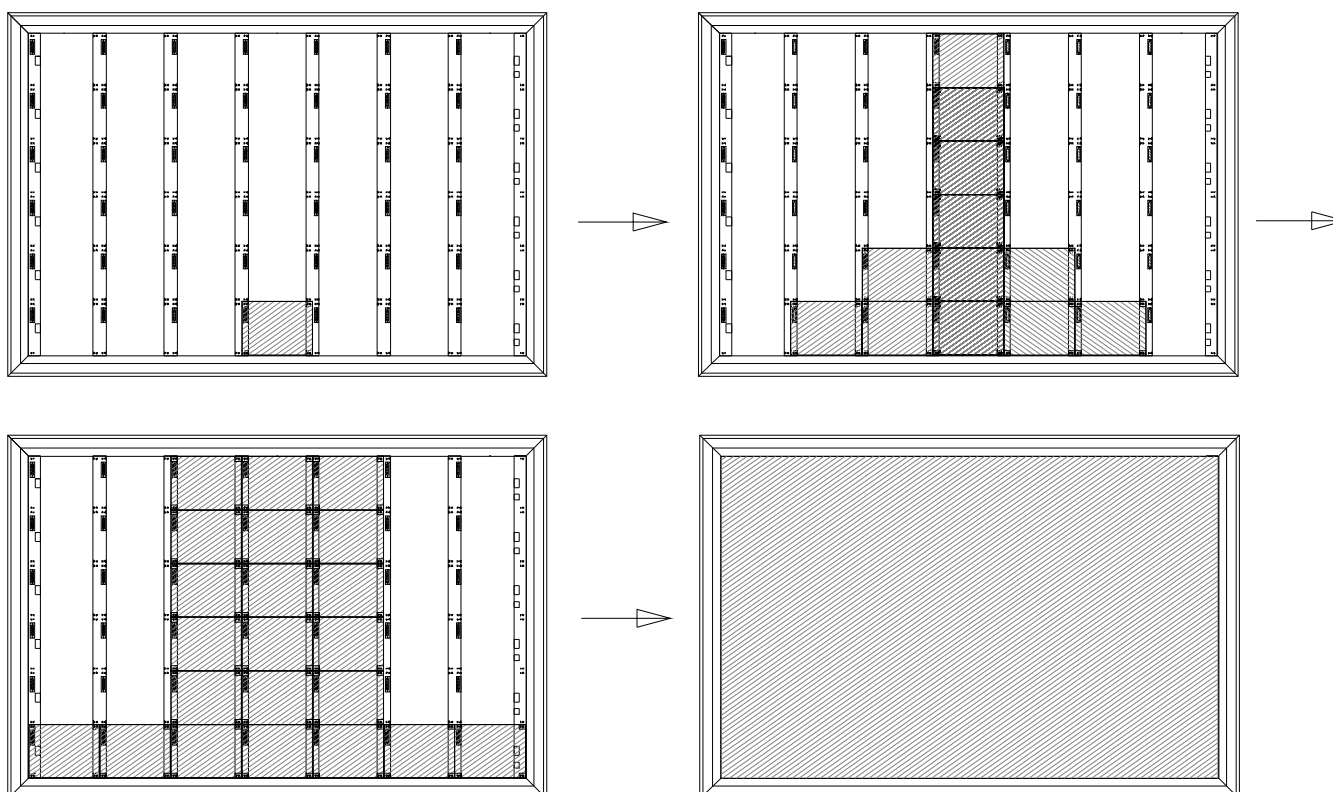


5.3 Fixing the IMPOSA lite display

Before mounting the display, attention must be paid to the following few things:

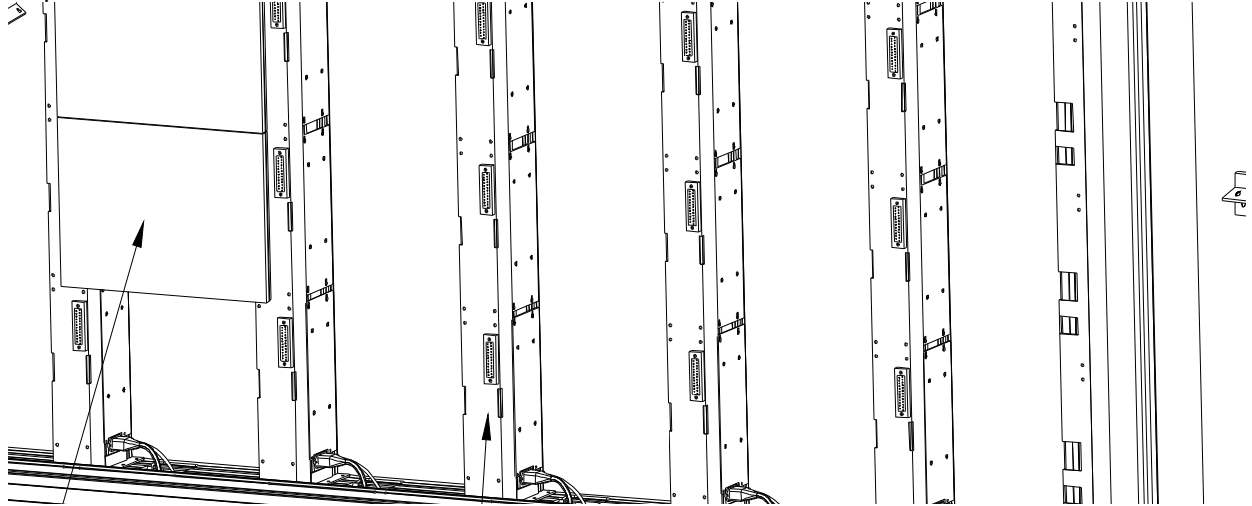
- § Make sure that the frame of the display has been properly connected with the supporting structure, that everything is in good condition on the horizontal and vertical direction of the display and that the installation surface is flat and even.
- § Check if the tiles are installed in their exact positions with the help of a Modular tool.

Installation of the tiles starts from the middle column from bottom to top and then towards both sides.

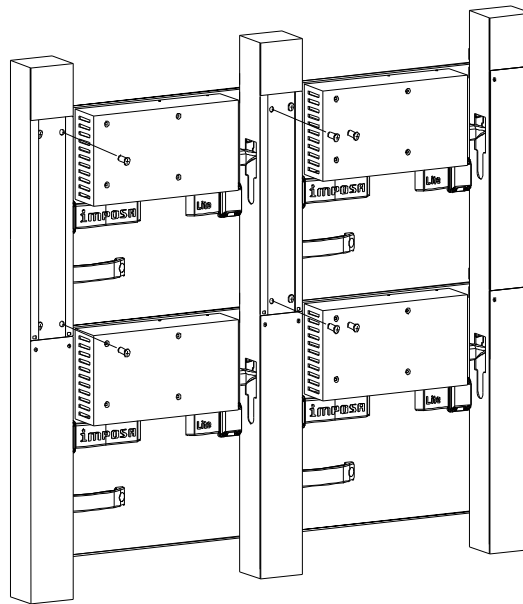


How to fix tiles onto the frame:

There is a handle at the back of each tile. Before mounting a tile, turn its handle by 90° anti-clockwise to draw back the locks at the back of the tile. Lay the tile in its exact position. Make sure connectors on the tiles match those on the pole extrusion. Turn the handle by 90° clockwise to lock the tile firm on the pole extrusion.



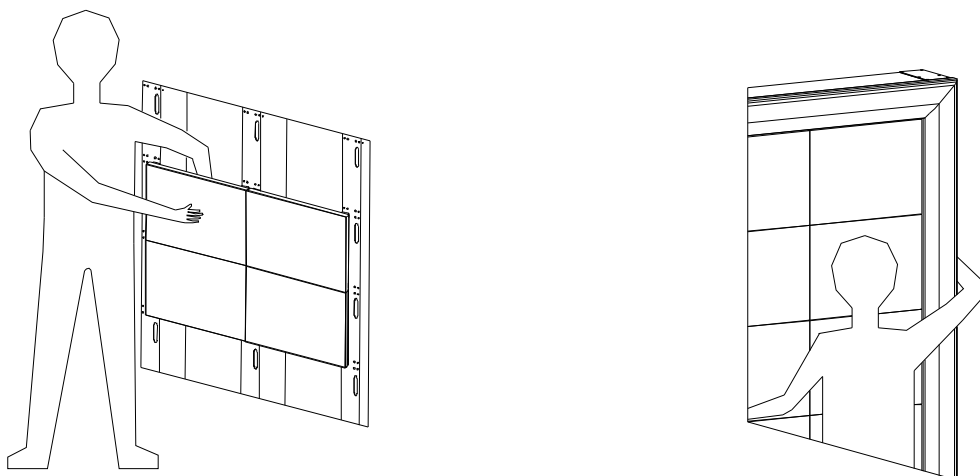
On the other hand, a P series tile is fixed onto the pole structure with 4 M6X12 screws at its back. While fixing the tile, one must make sure the connectors match the connection positions on the pole. After all tiles have been mounted, cover the pole extrusions with cover plates.



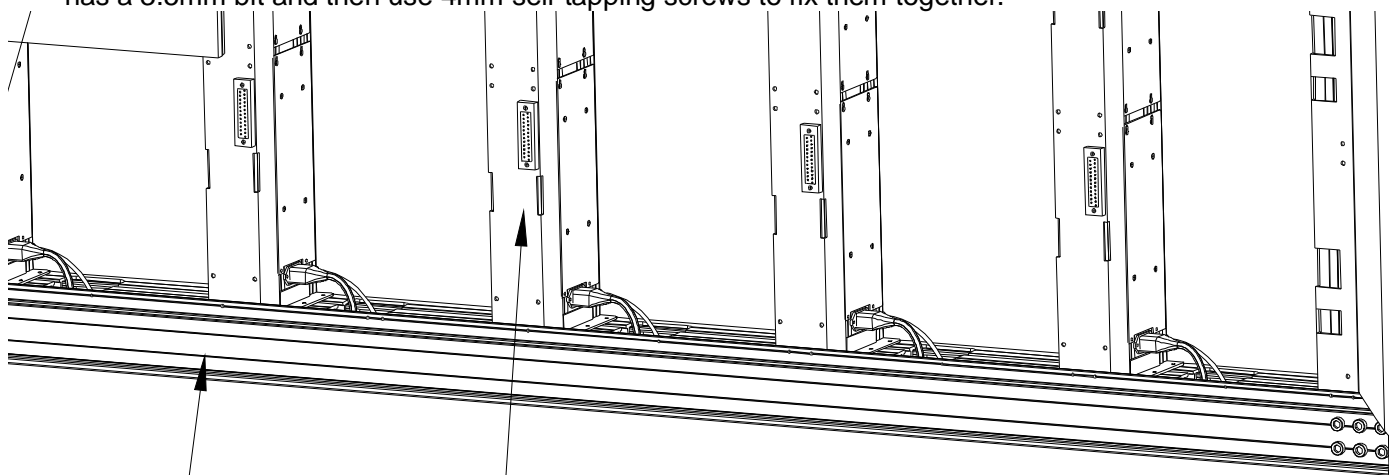
CAUTION: For a front-serviced display whose back is unapproachable, cables must be connected before the tiles are mounted.

TIPS: One can stand in front of a front-serviced display and reach his hand to the back of the tiles to operate on their handles so as to mount them. However, he has to operate by putting his hand between the wall and the display to mount the last tile.

Therefore some space must be kept between the wall and a front-serviced display, so that one can easily put his hand in to mount or maintain the last tile.



After all tiles have been mounted, it's time to mount the Cover extrusions. Fix the Cover extrusions with the Main extrusions with M4X12 screws. Or one can drill holes on both extrusions with a drill that has a 3.5mm bit and then use 4mm self-tapping screws to fix them together.

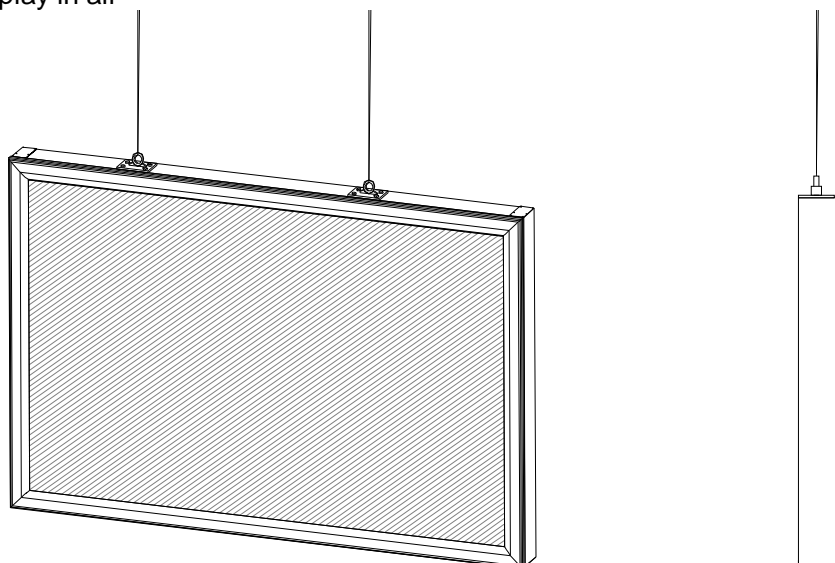


5.4 Other mounting methods

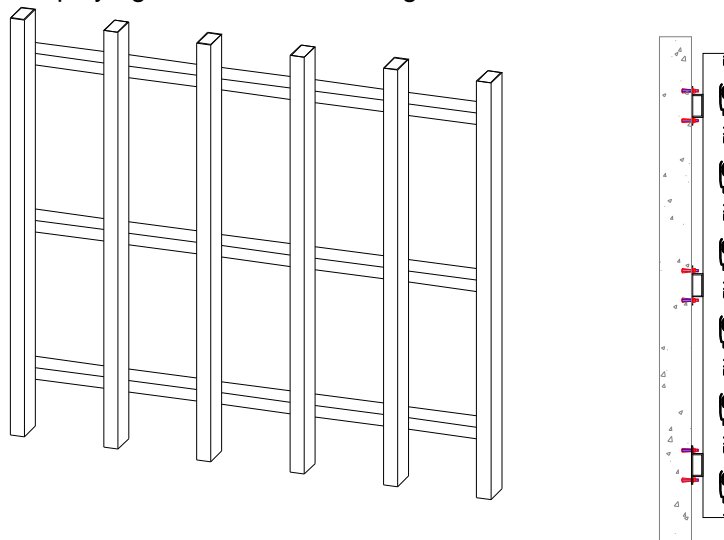
An IMPOSA lite display can also be installed in other ways depending on clients' actual application of the display.

Below are some typical examples:

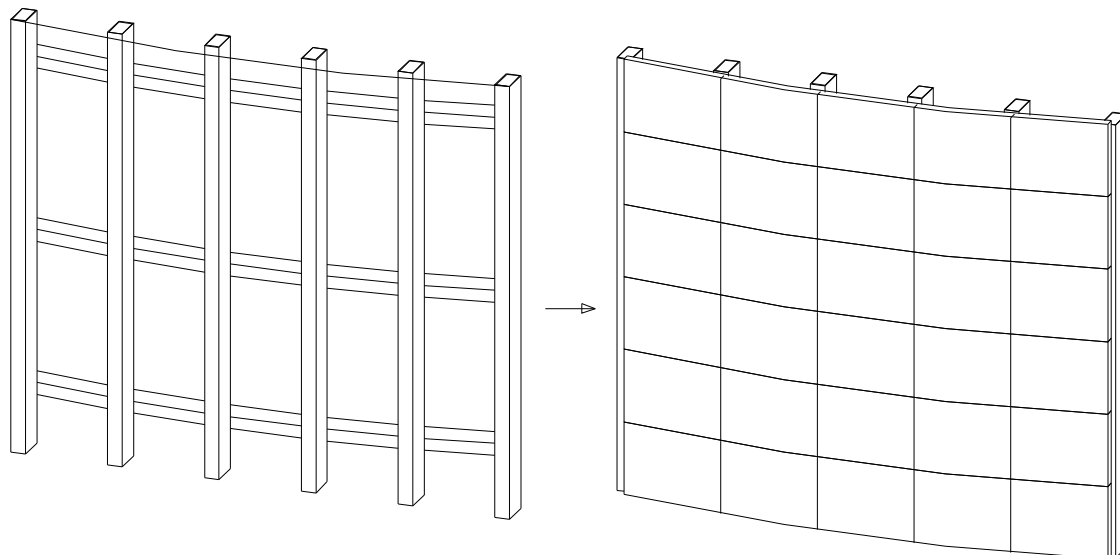
Hanging the display in air



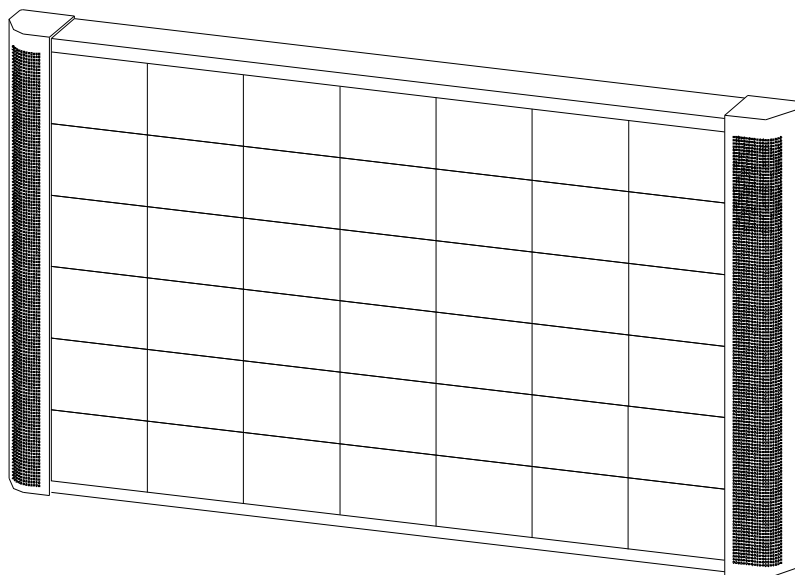
Mounting a frame less display against a wall or into a groove on the wall



Mounting the display onto an arc-shaped wall with a minimum radius of 8m



Special side covers to be installed inside a voice box



6. Cabling an IMPOSA lite display

This chapter covers the system cabling of an IMPOSA lite display.

Overview

- § System cabling
- § Grounding
- § Pixel limitations

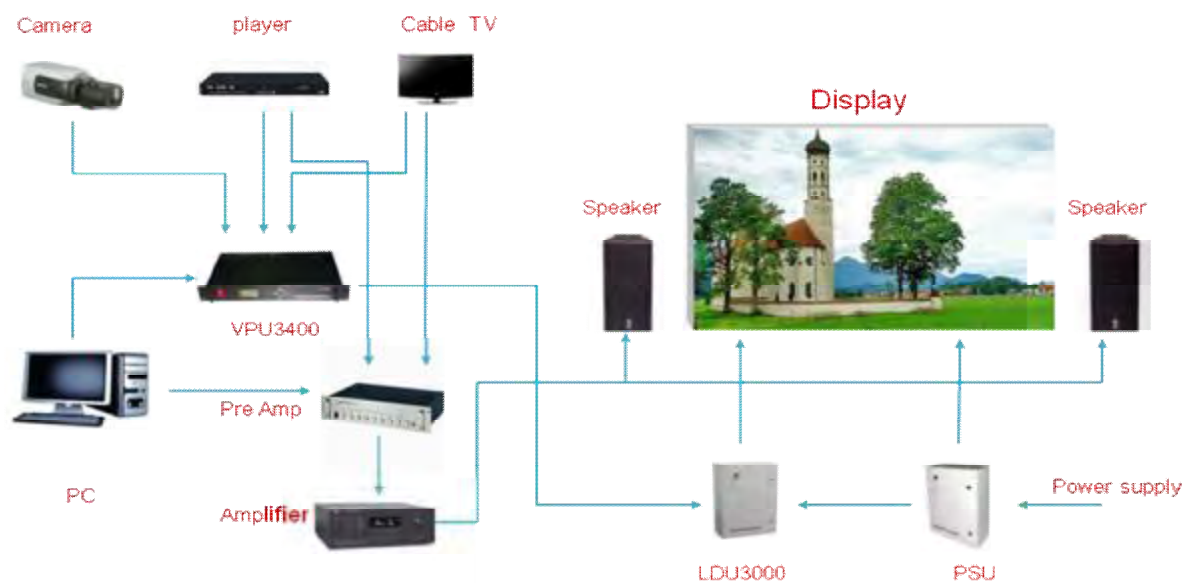
The power and signal connection between tiles have been taken care of while the tiles are being mounted. Therefore one needs to do the system cabling only after having finished mounting the tiles.

6.1 Cabling an on-line IMPOSA lite display

An on-line IMPOSA lite display can display various kinds of video files, such as AVI, MPEG2, etc., or can be directly connected to various kinds of live video sources.

An on-line IMPOSA plus display system wiring diagram

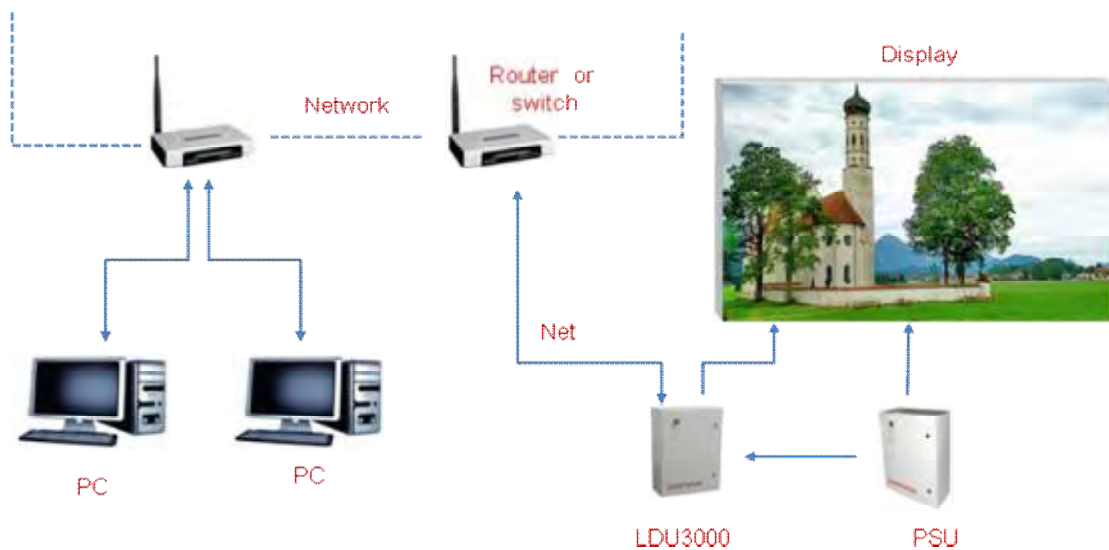
Example of an on-line IMPOSA lite display



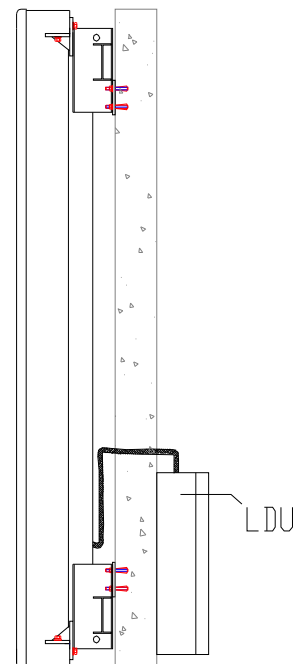
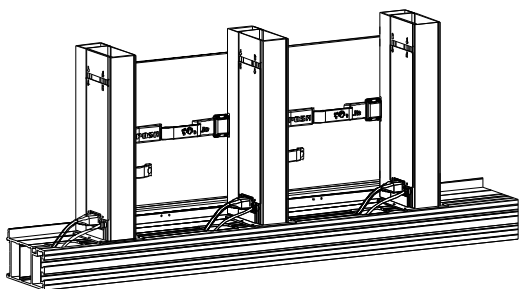
6.2 Cabling an off-line IMPOSA lite display

An off-line IMPOSA lite display system is usually used to display graphics or images, or even video files for advertising purposes. It is especially useful for an interconnected digital billboard network.

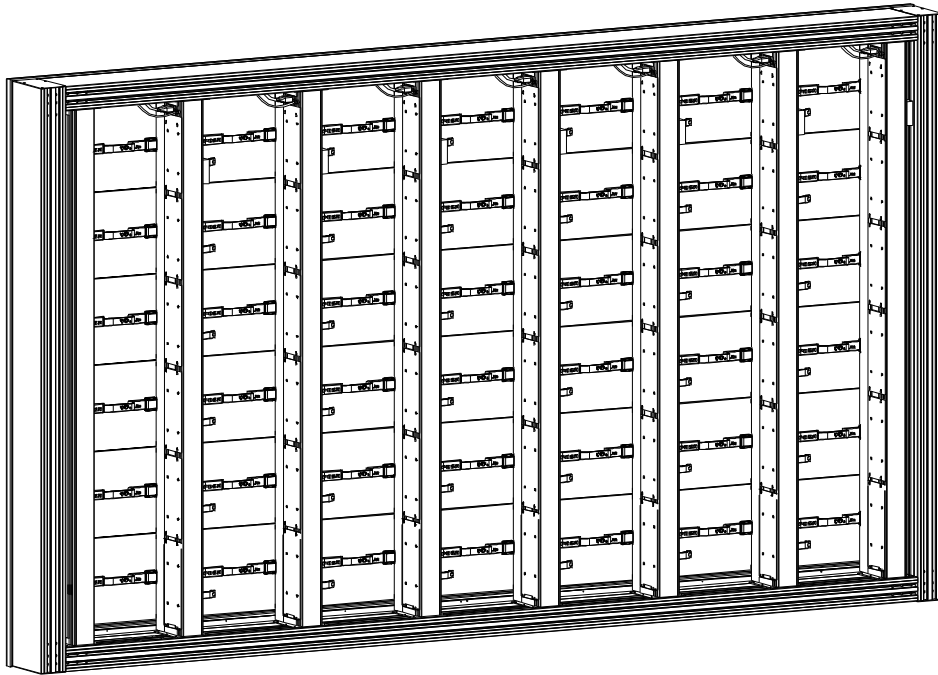
Example of an off-line IMPOSA lite display



TIPS: The LDU has to be laid close to the display. It can be put behind the display or somewhere else nearby. The signal cables and power cables of the tiles can be hidden inside the Main extrusions.



TIPS: Signal cables from the LDU and power cables from the PSU (or directly from commercial power) are usually connected to the display at its bottom. However, if otherwise required, for instance, if the display is to hang in the air, the cables can be rearranged to be connected from the top of the display. But this must be specified with the Manufacturer before the production order is placed.



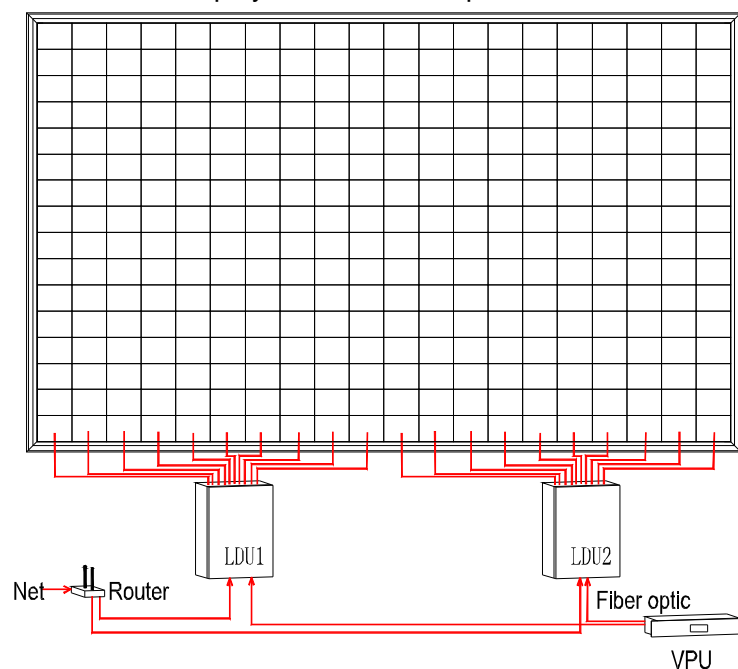
6.3 Pixel limitations

The IMPOSA lite display system supports a dot matrix resolution of up to 1920X1080 pixels. However, the signal distribution system LDU only supports up to 1024X768 pixels. That is to say, an LED display larger than 1024X768 pixels would need a special LDU connection arrangement.

6.3.1 Limitation of signal connection

Due to the pixel limitation of the LDU, an LED display larger than 1024X768 pixels would need more than one LDU to support distribution of signals. When multiple LDUs are connected together, the right starting point of each LDU on a picture must be appointed and preset.

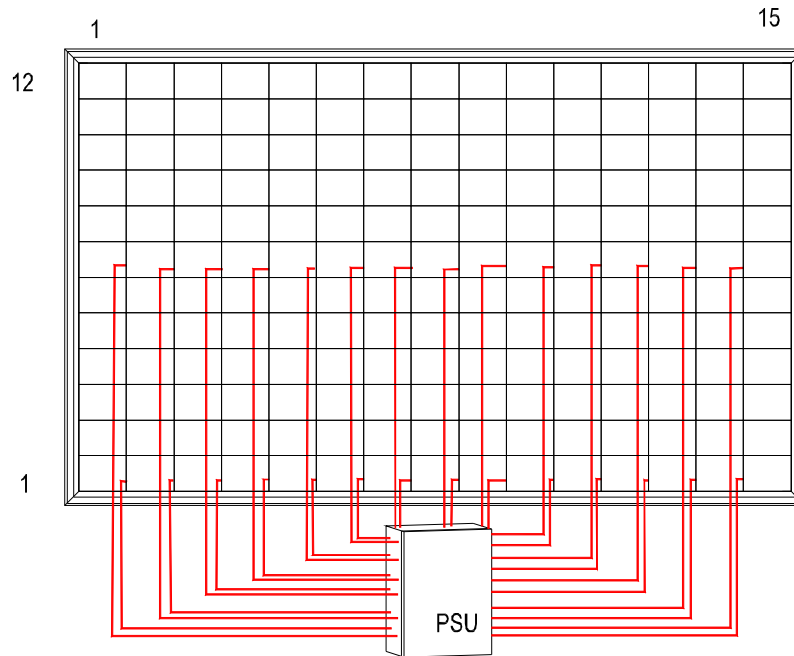
Example: Signal connection of a display with 1280X768 pixels



6.3.2 Limitation of power connection

As a rule, each column of tiles of an LED display is connected by an AC power cable to the PSU for power supply. However, if the display is extremely large and comprises of more tiles than could be supplied by one power cable due to current restriction, it becomes necessary to use multiple power supply cables which need to be connected to different power output terminals at the PSU.

Example: Power supply connection of a display with 960X600 pixels



7. Maintenance

Overview

- § Firmware update
- § Replacement a Tile of IMPOSA lite display
- § Replacement a unit control board
- § Replacement a power supply
- § Replacement a LDU control board

7.1 Firmware update

Control boards in both LDU and display unit may need firmware updating in actual use.

7.1.1 LDU firmware update

There are 3 ways to update the firmware on the control board QS5800 in the LDU:

1. Use the update package QS5800_update packet_verxx.xx_(year/month/date).rar to update the firmware
Steps: connect the display to a PC via an Ethernet cable, decompress the package in the PC, and double click the update.bat in the file to start the automatic update process.
2. Use the update package QS5800_update packet_verxx.xx_(year/month/date) (for USB).rar to update the firmware
Steps: decompress the package in a USB disk, connect the disk to the QS5800 control board and the update process will start automatically.
3. Use the update file xxxx.cpu.
Steps: Log onto the software Sigma 3000, choose Tool---Update---Update CPU and then select the file xxxx.cpu to start the update process.

7.1.2 Updating the display unit controller firmware

There is a QS5242 control board inside the power box of each Unit. Following steps shall be observed to update the firmware on these control boards:

Log on the software IMPOSA Tools and choose "Maintenance" where you can choose a certain Unit address or choose All Units for updating the firmware on their control boards.

Select the following files in sequence for updating:

File xxx.bin -----the CPU program for the control board. You can find it in the File Style menu presented as "CPU program for tiles";

File xxx.bin -----the data file of the control board. It can be found in the File Style menu presented as "Drive Board data";

File xxx.rbf -----the FPGA program for the control board, presented as "FPGA for tiles" in the File Style menu;

File xxx.rbf -----the gamma data of the control board which can be seen as "Gamma Data for tiles" in the File Style menu;

File xxx.bin -----the brightness data of the control board, presented as "Brightness Block of tiles" in the File Style menu.

TIPS: In order to make it convenient for the operator, a few definitions are given below for operation of the screws.

Unfasten: It means loosening the screw halfway. Do not unfasten completely or remove the screw.

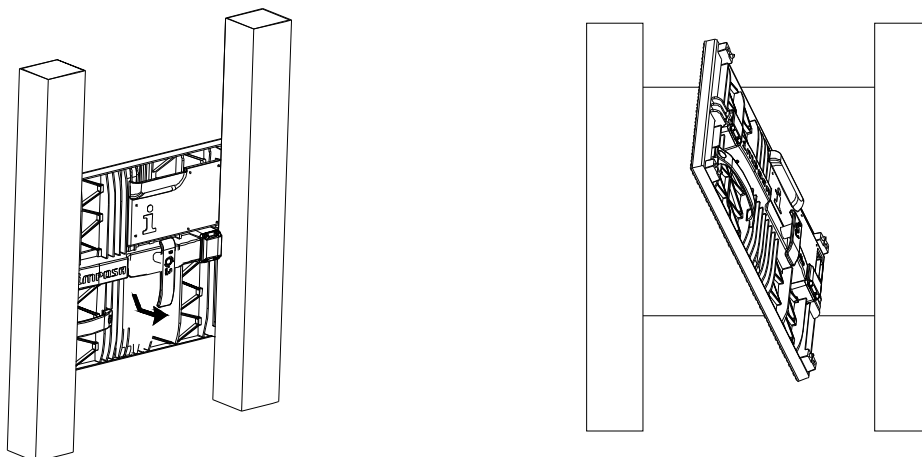
Unscrew: It means completely unfastening the screw. But because the screws are of an un-detachable type, there is no need to worry about the screw dropping to the ground.

Remove: It means removing the screw completely. Care should be taken of not to let the screw drop to the ground or get lost.

7.2 Replacing a Tile of an IMPOSA lite display

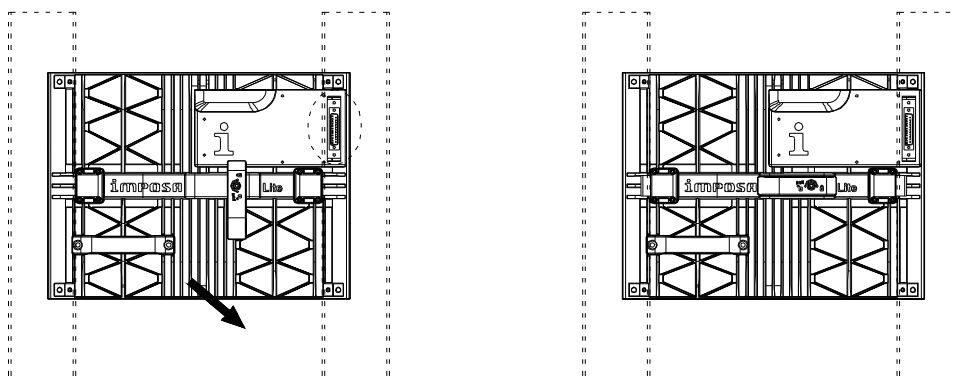
Removing a Tile:

- § Catch at the handle in the rear side of the Tile, turn the handle by 90° anti-clockwise and push the Tile outward.
- § Rotate the tile by 45° and take the tile in through the fixation frame.



Fixing a Tile:

- § Move the tile out through the fixation frame window to the proper location in the front of the display. Make sure the connectors match the connection positions on the frame.
- § Catch at the handle of the tile and pull it inward. When the 4 corners of the tile is even against the installation surface, turn the handle clockwise until it is leveled.

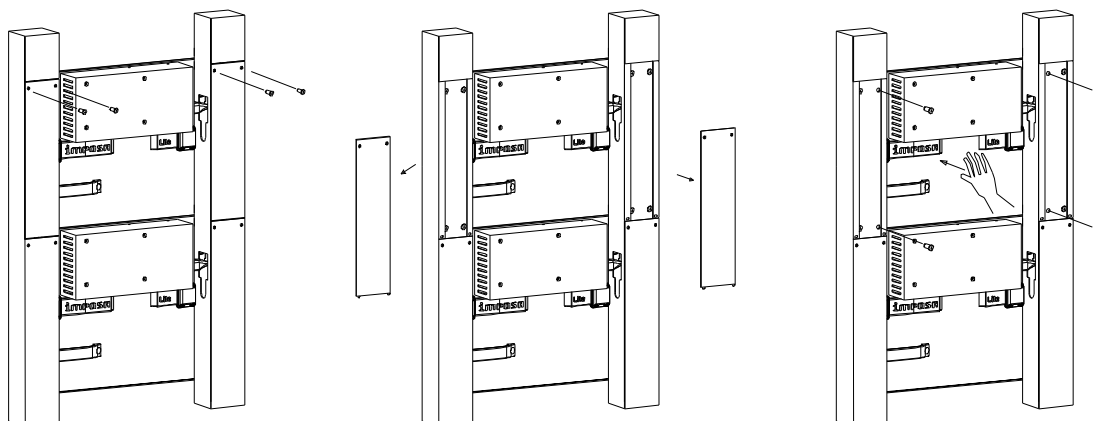


Removing a P series Tile:

Necessary tools

6mm cross head screw driver

- § Remove the cover and the AC power connector of the Tile on the pole.
- § Remove the 4 screws on the tile by using a 6mm cross head screw driver and push the tile out.
- § Rotate the tile to 45° and take the tile in through the fixation frame.



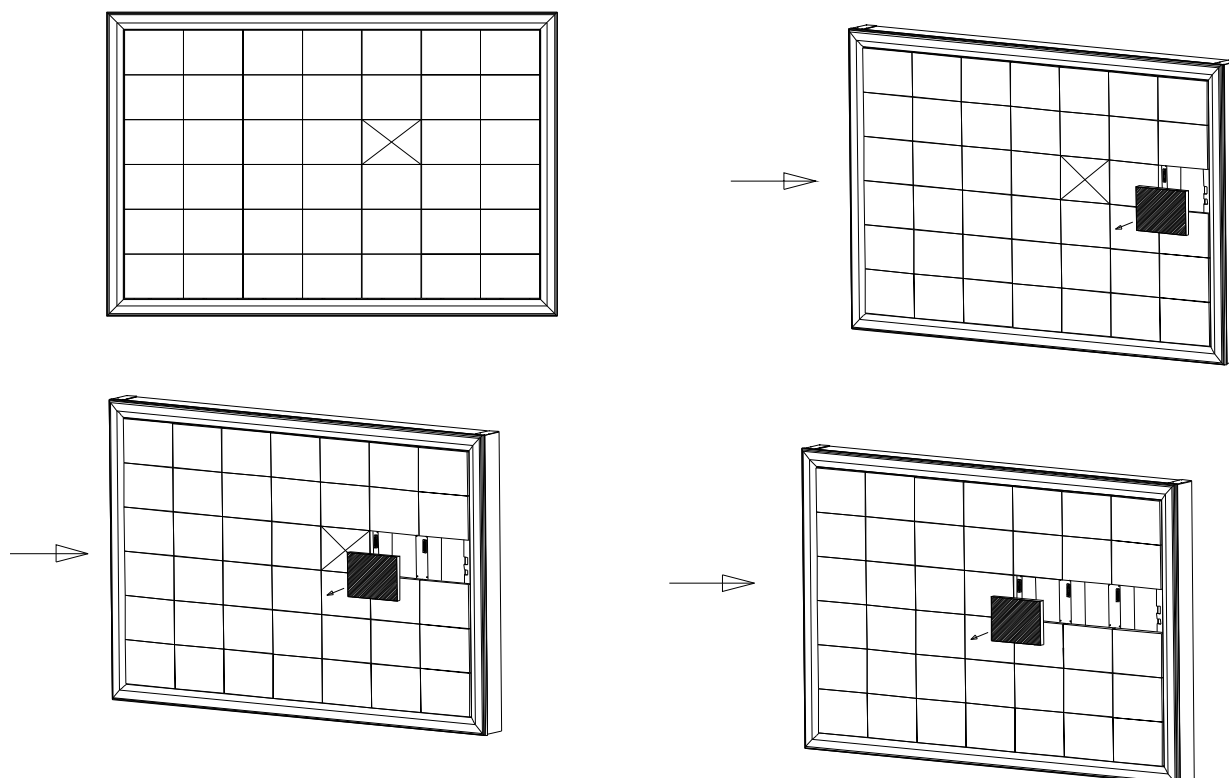
Reverse the above steps and it becomes the process of fixing a P series Tile.

7.3 Replacing a Tile of a front serviced IMPOSA lite display

TIPS: For a front serviced IMPOSA lite display, some space must be kept so that one can reach his hand to the back of the display to mount or maintain the nearest tile.

Removing a Tile:

- § One can reach his hand from the side of the display to remove the nearest approachable tile to the target tile.
- § Remove all the other tiles one by one through the left out fixation window until the target tile can be accessed.
- § Remove the target tile.



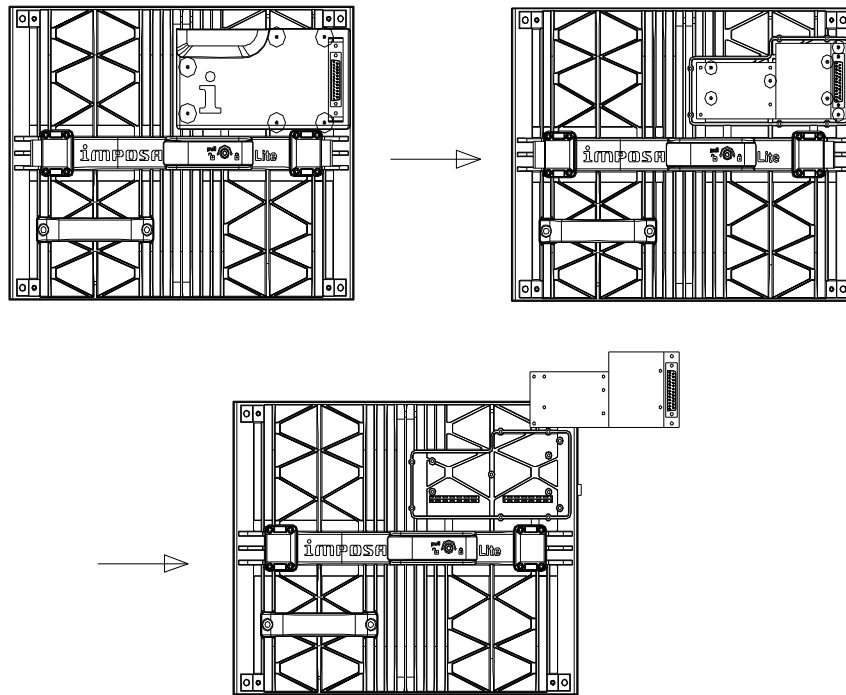
Fixing a front serviced IMPOSA lite display tile is reversed to its removing process.

7.4 Replacing a Tile control board

Necessary tools

6mm cross head screw driver

- § Removing the control board:
- § Lay the tile. Unscrew the 4 screws on the tile and remove the cover.
- § Remove the 5 screws on the control board and take the control board off in the vertical direction.



The process of fixing a tile control board is in a reverse order of removing it.

7.5 Replacing a power supply

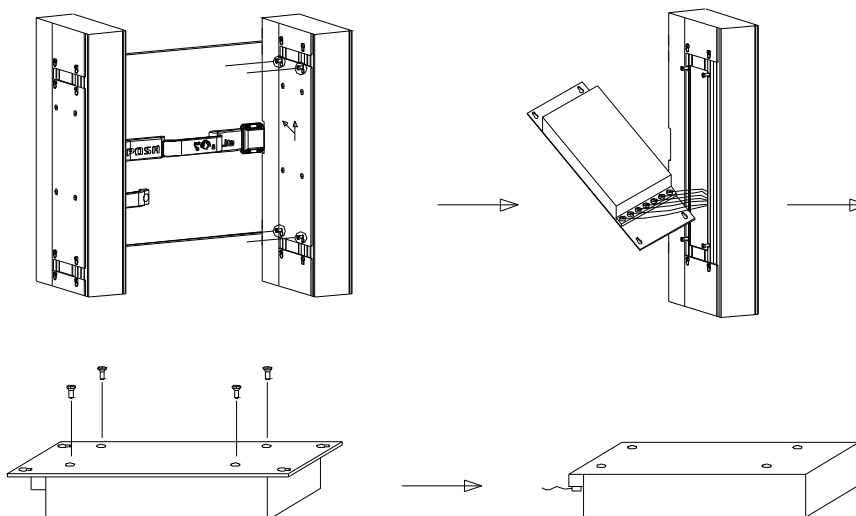
Necessary tools

6mm cross head screw driver

CAUTION: The replacement work must be done AFTER all power supplies to the LED display have been completely disconnected.

Removing a power supply:

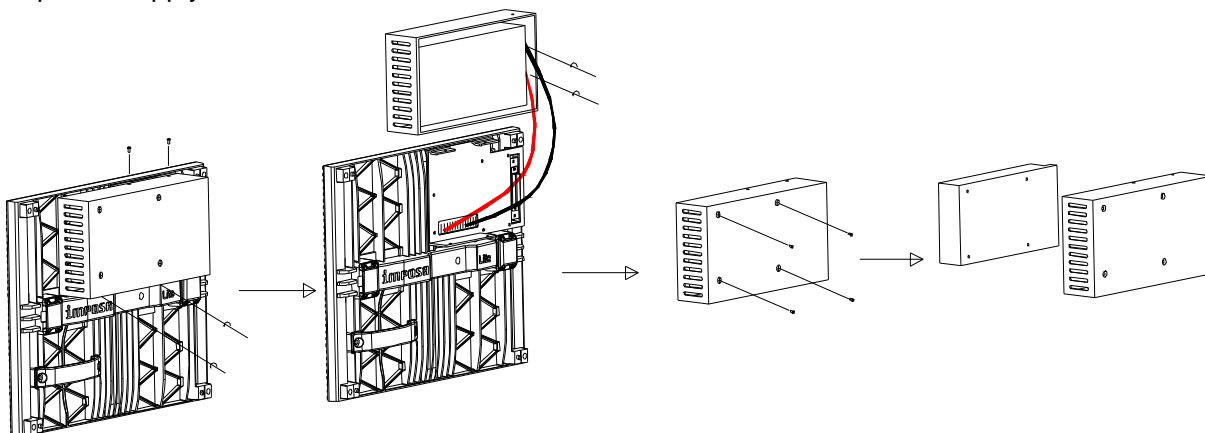
- § Use a 6mm cross head screw driver to remove the screws on the cover on the pole extrusion. Take the cover and the power supply off the pole carefully.
- § Unfasten the screws on the connectors of the power supply with a screw driver. Disconnect the cables to the power supply.
- § Remove the 4 screws in the rear side of the power supply fixing plate, and then remove the power supply.



Fixing the power supply is in a reverse order of removing it, with special attention to be paid to the proper connection of the cables to the power supply.

Replacing a P series tile power supply:

- § Lay the P series tile, remove the 2 screws on the upper part of the power cover and unfasten the other 2 at its bottom. Then take down the cover.
- § Disconnect the cables to the power supply.
- § Remove the 4 screws in the rear side of the power supply fixing plate, and then take out the power supply.



Fixing the power supply is in a reverse order of removing it, with special attention to be paid to the proper connection of the cables to the power supply.

7.6 Replacing an LDU control board

Necessary tools

- § 6mm hexagonal key
- § 6mm cross head screw driver

CAUTION: The replacement work must be done AFTER all power supplies to the LED display have been completely disconnected.

Process to remove an LDU control board:

- § Use a 6mm hexagonal key to open the door on the LDU box.
- § Disconnect the wires to the QS5800 control board. Check if the signal output wires are marked with numbers. If no mark is seen, please label the output signal wires with numbers.
- § Remove the 4 screws on the control board with a 6mm cross head screw driver, and then take out the control board.



QS5800



Process to install an LDU control board:

Install the LDU board in the reverse process order of removing it. Special attention should be paid to the location and method of connection of the signal output wires.

8. Trouble shooting

This chapter introduces some possible trouble symptoms and their remedial treatment to the IMPOSA lite display.

TIPS: If a problem is seen on an LED display and its cause is hard to diagnose, please write down a description of the symptom as detailed as possible, take some pictures and report to the Manufacturer for help.

CAUTION: Before any operation on the PCB or any wire connection is carried out, all power supplies to the LED display **MUST** be completely disconnected. When doing wire connection, please make sure all wires have been connected properly and securely.

| Symptom | Cause Analysis | Remedy |
|--|---|--|
| One tile is not displaying. | <ul style="list-style-type: none"> § Cables connected to the tile get loose. § Program or data on the tile control board get lost. § Something is wrong with the tile itself. | <ul style="list-style-type: none"> § Check the connectors and the signal cables of the tile. § Update the CPU program or data on the tile. § Replace the tile. |
| A small segment of the tile is not displaying the right color, or the segment is uncontrollable. | <ul style="list-style-type: none"> § Something is wrong with the tile itself. | <ul style="list-style-type: none"> § Replace the tile. |
| One tile keeps displaying the address number. | <ul style="list-style-type: none"> § The signal cable to the tile is not connected well. § Firmware on the tile controller is impaired. § Tile controller is broken. | <ul style="list-style-type: none"> § Connect the signal cable to the tile properly and securely. § Update the CPU program or data on the tile. § Replace the tile controller. |
| One unit shows a different color or brightness from the surrounding units. | <ul style="list-style-type: none"> § The gamma data on the tile controller are different from those on other tile controllers. § The brightness data on the tile controller are different from those on other tile controllers. | <ul style="list-style-type: none"> § Check the gamma data of the tile in IMPOSA Tools and set them same as those on other controllers. § Update the brightness data on the tile controller or set them to be same as those on other controllers. |
| A whole patch above a certain tile in a column goes completely dark. | <ul style="list-style-type: none"> § Either the power supply or the cable connection of the failed tile at the lowest position needs to be fixed. § The signal cable connecting to the failed tile at the lowest position hasn't been properly connected. § The control board of the failed tile at the lowest position may be impaired. | <ul style="list-style-type: none"> § Check the power supply and the power cable of the tile. Correct or replace them if necessary. § Check the cable connection on the tile controller. Connect them properly. § Replace the tile controller. |
| One column of tiles goes completely dark. | <ul style="list-style-type: none"> § There is no power into this column. § There is no signal into this column of tiles. | <ul style="list-style-type: none"> § Check the power cable and power connector of the column. § Check the connectors at both ends of the signal cables of the column. |

| | | |
|--|---|---|
| One column of the display keeps showing random contents. | § The signal cables on this column are not connected well. | § Check the connectors at both ends of the signal cables of the column. |
| The whole LED display goes dark. | § There is no power in at all. § The power supply or the control board in the LDU failed to work properly. § There is no display content available. | § Check if there is indeed power input. § Check the power supply and the control board in the LDU. Replace them if necessary. § Send display contents to the display. |

9. Specifications

The chapter lists main parameters of an IMPOSA lite display and those of its components.

Overview

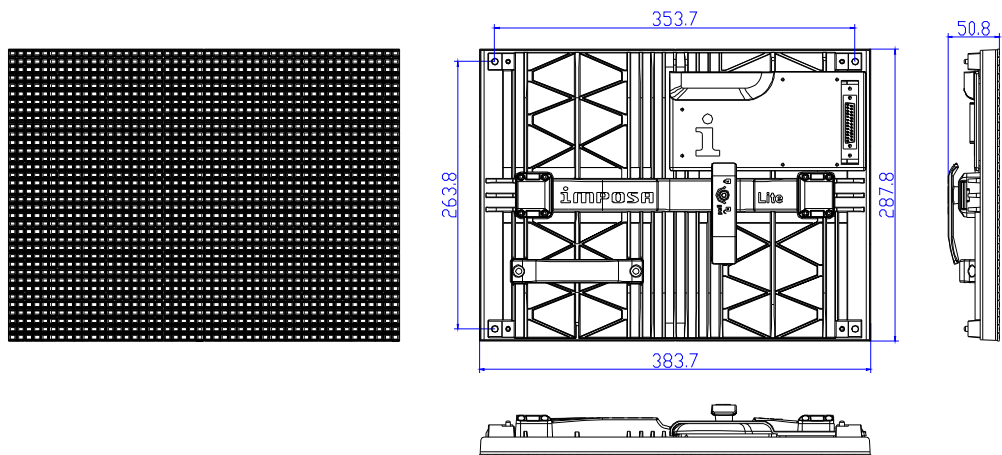
- § IMPOSA lite VFI series display specifications
- § Dimensions of an IMPOSA lite display
- § Weights of IMPOSA lite parts

9.1 IMPOSA lite VFI series display specifications

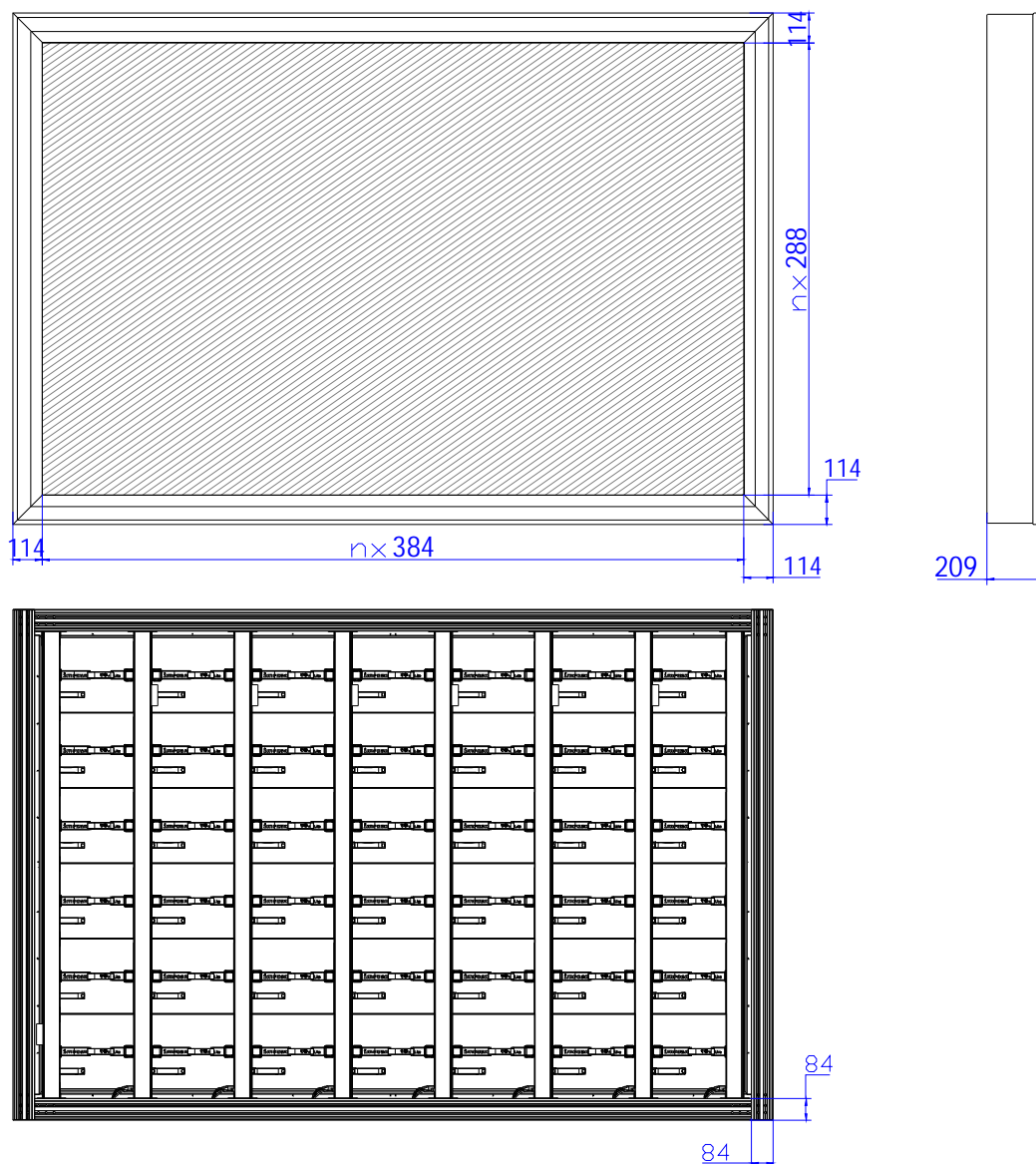
| | VFI6 | VFI8 | VFI9.6 | VFI12 |
|---------------------------|--|--|--|---|
| Pixel pitch | 6mm | 8mm | 9.6mm | 12mm |
| LED configuration | RGB 3in1 Chip LED | | | |
| Tile physical resolutions | 64X48 | 48X36 | 40X30 | 32X24 |
| Colors | 14 bit each color | | | |
| Brightness | 2200 nit | 2000 nit | 2000 nit | 1500 nit |
| Viewing angle | Horizontal 140° Vertical 120° | | | |
| Pixel density | 27,778/m ² 2,582/ft ² | 15,625/m ² 1,452/ft ² | 10,851/m ² 1,008/ft ² | 6,944/m ² 645/ft ² |
| Refresh rate | > 1000 Hz | | | |
| Power consumption | max.120W/Tile | max.120W/Tile | max.100W/Tile | max.100W/Tile |
| Temperature range | -20 ~ 40 °C (-4 ~ 104 °F) | | | |
| Humidity | 40% ~ 95% | | | |
| Lifetime | Compositive 100,000 Hours | | | |
| Tile dimensions | 384mm X 288mm (15.1" X 11.3") | | | |
| Tile weight | 2.9kg (6.4lbs); Tile : 3.9kg (8.6lbs) | | | |

9.2 Dimensions of an IMPOSA lite display

Dimensions of a Tile

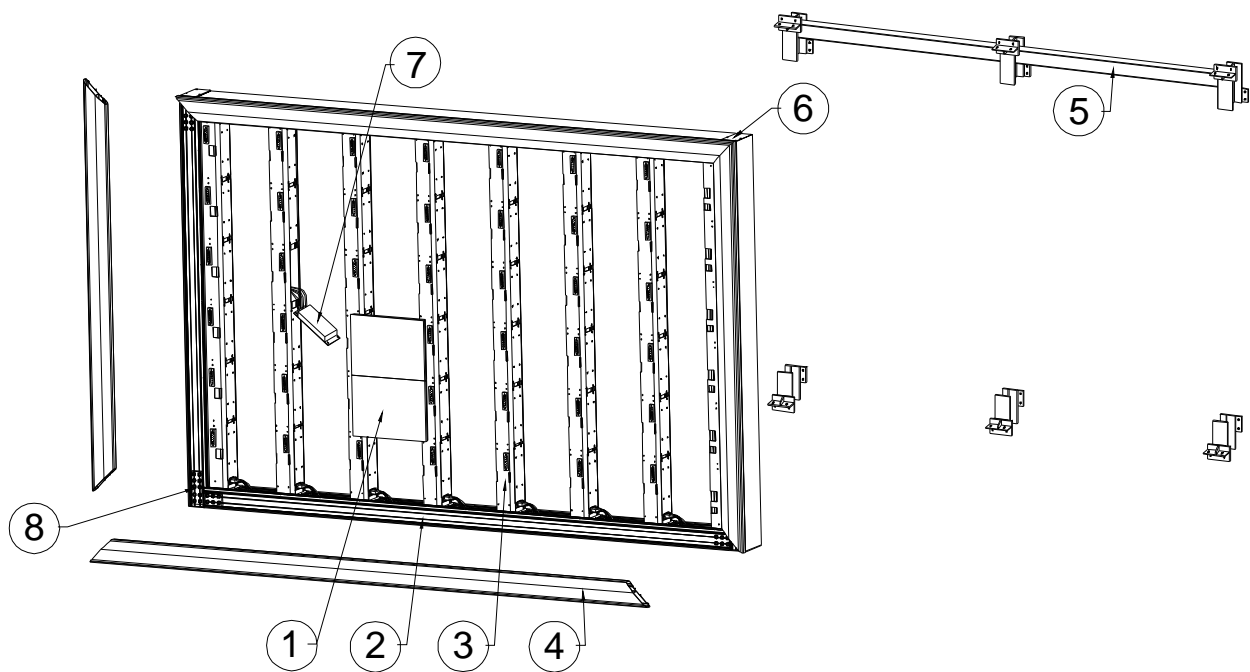


Dimensions of a sample IMPOSA lite display



9.3 Weights of IMPOSA lite display parts

Main assembling parts of an IMPOSA lite display



| Series | Parts | Weight |
|--------|-------------------------|--------|
| 1 | Tile | |
| 2 | Main extrusion | |
| 3 | Column extrusion Module | |
| 4 | Cover extrusion | |
| 5 | Support structure | |
| 6 | End cover | |
| 7 | Power supply | |
| 8 | Connect block | |
| 9 | | |
| 10 | | |

10. Part Numbers of IMPOSA lite display parts

[illegible]